

**UNIVERSITY OF TWENTE.** 

# Preface

By handing in this masterthesis, my journey of Communication Studies at the University of Twente in Enschede ends after studying there for around five years. It was a great time and I learned a lot. Many thanks to Melanie and Megan for making this time so memorable! For me, writing the masterthesis was quite a challenge – also due to personal circumstances. I really gave my best and now I am very proud to present my work. But this would not have been possible without the support of these incredible persons.

First of all, I want to thank my supervisors Dr. Thea van der Geest and Dr. Ardion Beldad for their great guidance and shared knowledge. The meetings were always very helpful and inspiring to me. Of course, the meetings would not have been the same without the other members of the "afstudeerkring". Astrid, Casper, Marcel and Robert, thank you so much for your help and motivating words. I am really grateful that I could contact you, whenever I had problems. Thanks a lot!

Last but not least I want to thank my family, friends and colleagues for their motivation and their long-lasting support. Thanks for always being there for me!

Enschede, May 2016 Svenja Beuker

# Abstract

This study aims to investigate the privacy paradox, examine the factors that influence this paradox and determine the factors that influence the willingness to disclose personal information on Facebook. The privacy paradox describes the unexpected behavior by people who are concerned about their privacy, but nevertheless disclose personal information. Therefore, the factors privacy valuation, peer pressure, perceived benefits and perceived risks are analyzed in relation with the willingness to disclose personal information. Data was collected via an online survey that was completed by 1.320 German and Dutch Facebook users above 18 years. The research model was adapted based on the results of three Principal Component Analyses and tested separately for German and Dutch respondents. The adapted research model was analyzed with regression and mediation analyses to be able to answer the hypotheses, explain the privacy paradox and examine the factors influencing the willingness to disclose personal information on Facebook.

The results of this study confirm that privacy valuation, perceived risks, perceived benefits and peer pressure significantly influence the willingness to disclose personal information. Willingness to disclose personal information is separated into five different sub constructs that describe different types of information disclosure on Facebook. The findings indicate that it is necessary to analyze these types separately, because different factors (peer pressure, perceived risks, perceived benefits and privacy valuation) affect different types of disclosure. There are significant differences between the nationalities. Peer pressure does not influence Dutch Facebook users, but it significantly influence the decision whether to disclose personal information of German Facebook users. The results of this study show that peer pressure is twofold for German Facebook users. It positively affects perceived benefits and perceived risks and therefore reinforces and also reduces willingness to disclose personal information indirectly. For both, German and Dutch respondents perceived benefits of disclosing personal information is the strongest influencer of willingness to disclose personal information.

This study takes a further step in explaining the privacy paradox. Perceived benefits and perceived risks mediate the relationship between privacy concerns and the willingness to disclose personal information and therefore provide a possible explanation for the privacy paradox. For Dutch Facebook users, privacy concerns are less influencing on the willingness to disclose personal information when they perceive benefits. Perceived benefits override privacy concerns in this context and explain the unexpected behavior of Dutch Facebook users. The findings of this study, especially the mediating influence of perceived benefits and perceived risks, the five types of willingness to disclose personal information as well as the influence of peer pressure offering a broader view on the privacy paradox and disclosure on Social Network Sites. This study provides new insights in an actual and upcoming topic and additionally outlines possible further research subjects.

# Table of content

Prefac	ce	2
Abstra	act	3
Table	of content	4
	oduction	
	eoretical framework	
2.1	Willingness to disclose personal information	9
2.2	Privacy concerns 1	1
2	2.2.1 The direct influence of privacy concerns on personal information disclosure	1
2	2.2.2 The indirect influence of privacy concerns on personal information disclosure	2
2.3	Privacy calculus: Balancing perceived risks and perceived benefits1	3
2	2.3.1 Perceived risks	4
2	2.3.2 Perceived benefits	6
2.4	Peer pressure1	8
2.5	International differences 1	9
2.6	Research model	0
3. Res	search design	1
3.1	. Participants	1
3.2	. Research instrument	1
3.3	. Translation process	3
3.4	. Pre-test 2	3
3.5	. Procedure	4
4. Res	sults2	5
4.1	. Respondents 2	5
4	I.1.1. Demographics	5
4	I.1.2. Facebook use of the respondents 2	7
4.2	. Quality of instrument	7
4	I.2.1. Reliability of scales	7
4	I.2.2. Validation of constructs	8
4.3	. Descriptive results	9
4	I.3.1. Pre-existing factors	0
4	I.3.2. Situational factors	0
4	1.3.3. Willingness to disclose personal information	1
4.4	. Testing the German research model3	2
4	I.4.1 Testing the German model at an aggregated level	2

4.4.2 Testing the German model on a detailed level of Perceived risks and Perceived benefits . 36
4.4.3. Testing the German model on a detailed level with five sub constructs of Willingness to disclose personal information
4.4.4. Mediation analyses (German respondents) 43
4.5. Testing the Dutch research model 46
4.5.1. Testing the Dutch model at an aggregated level46
4.5.2. Testing the Dutch model on a detailed level of Perceived risks and Perceived benefits 50
4.5.3. Testing the Dutch model on a detailed level with five sub constructs of willingness to disclose personal information
4.5.4. Mediation analyses (Dutch respondents)
4.6. Comparing German and Dutch models
5. Conclusions and discussion
5.1 Future research directions
References
Appendix A: Overview of the scales
Appendix B: Survey in English
Appendix C: Differences between the nationalities
Appendix D: Reformulated hypotheses
Appendix E: Validation of constructs

# 1. Introduction

The issue of privacy in the Social Web is often discussed. More and more people are online and use the internet to communicate via Social Network Sites (SNS). In 2013, there were around 1.59 billion Social Network Users worldwide and it is expected that the number of users will rise to 2.44 billion in 2018 (Statista, 2015a). With 1.59 billion monthly active users (as of December 2015) Facebook is the most popular SNS in the world (Facebook, 2015). Social Network Sites such as Facebook are especially popular among the younger population. According to Statista (2015b), users between 25 and 34 ages are the largest age group on Facebook, followed by users between 18 and 24 ages. Together these groups cover more than the half (51.87%) of all Facebook users in Germany in 2014 (Statista 2015b). Due to the popularity of Facebook, it is investigated in this study as a representative of Social Network Sites.

The first step of using Facebook is creating an account. In this step, the user provides personal information like name, gender, date of birth and e-mail address. The data which users provide may be very sensitive and can be easily misused by others. In 2010, there were around 150.000 identities and keywords stolen from Social Network Sites in Germany (Statista, 2015c). The thieves use this data for example to shop online (ndr, 2015). Facebook users have to disclose personal data to participate in the network, but also need to protect their personal data. Therefore, SNS users often feel a tension between the desire to self-disclose and the protection of their privacy (Taddicken, 2014). They are able to choose to what amount they are willing to provide personal information, but to participate in the network, they have to create an account with a certain degree of personal information.

Not only the profile, but also the communicative actions that users perform provide lots of information about the person. With activities like uploading photos, liking pages or commenting messages, Facebook users give insights in their individual person and state of mind. It is up to the individuals how they use the network and how much data they provide. Disclosing information is to some extent voluntarily in SNS – in contrast to e-commerce contexts (Chang & Heo, 2014). Hence, Facebook users have to find the right balance between hiding and providing information. They benefit from sharing opinions, knowledge, videos and experiences on Facebook. After all, sharing information is the starting point for interaction and communication and these are the main goals of using SNS (Taddicken, 2014). However, the use of Facebook can also have negative consequences. By providing personal data, individual's privacy is threatened (Taddicken, 2014). This could result in, for example, a loss of dignity, stalking or theft (Sharma & Crossler, 2014). Many SNS users are therefore worried about their privacy (Tufekci, 2008, Debatin, Lovejoy, Horn, & Hughes, 2009).

Although individuals are worried about the misuse of their data and care about their privacy, they remain Facebook users and provide personal information. Previous studies searched for reasons for that contrary behavior, which is called *privacy paradox* (e.g. Kehr, Wentzel, Kowatsch & Fleisch, 2015). It is assumed that when people are worried about their privacy, they are more careful with their data and rarely disclose personal information. But this is not always the case. SNS users disclose personal information, even despite privacy concerns. Previous studies confirm the privacy paradox and show that although individuals have concerns about their privacy, they are still willing to provide personal information on SNS (Acquisti & Gross, 2006; Taddei & Contena, 2013; Taddicken, 2014). Researchers analyzed

the influence of different factors to explain the privacy paradox, but the questions still remain: which factors cause the privacy paradox? In other words, why do people disclose personal data on SNS (respectively Facebook) although they are concerned about their data?

A possible explanation of this paradox is that people weigh the benefits of social networking as more important than the possible loss of privacy. The weighing of risks and benefits is explained by the privacy calculus theory (Krasnova, Kolesnikova & Guenther, 2009). In line with this theory, the decision to disclose personal information on Facebook depends on the continuous risk-benefit calculation of the disclosure. When individuals perceive more benefits than risks, they are willing to accept the risks and thereupon disclose information. The current study uses this theory as theoretical foundation to take a further step in explaining the privacy paradox.

The privacy calculus describes a rational decision. However, it is assumed that there are more factors than risks and benefits that influence the privacy paradox. For example, preexisting factors like privacy concerns and peer pressure may influence the decision to disclose personal information on Facebook. The influence of privacy concerns on the disclosure of SNS users is often measured to explain the privacy paradox (Kehr et al., 2015, Taddicken, 2014, Acquisti & Gross, 2006). In this study, the influence of perceived risks, perceived benefits and peer pressure is also investigated to gain more information and to determine potential additional factors that influence the privacy paradox. Peer pressure is investigated because of the social environment on Social Network Sites and as a counterpart of the rather rational decision of the privacy calculus. Users act in a social environment and thus social pressure i.e. peer pressure is assumed to have influence on the information disclosure of users. The research question is:

#### To what extent do privacy concerns, peer pressure, perceived risks and perceived benefits affect an individual's willingness to disclose personal information on Facebook?

This study contributes to the scientific literature by taking a further step in clarifying the privacy paradox. The results will help to get a broader knowledge of the intention to disclose personal information in relation to privacy concerns and other influencing variables on Social Network Sites. In this context it is important to analyze different degrees of disclosing information. This study distinguishes between information disclosed on the Facebook profile and information disclosed in communicative actions while using Facebook. This contributes to a more detailed knowledge about self-disclosure on Facebook. The information disclosure on Facebook is aimed to be clarified by the influence of the outweighing of perceived risks and perceived benefits. Previous research supports significant effect of the privacy calculus and focused on the influence of perceived privacy benefits on perceived privacy risks (e.g. Malhotra, Kim & Agarwal, 2004, Kehr et al., 2015). There are no studies found that analyze the mutual influence of both variables. Privacy calculus is a process of the balancing of risks and benefits. This study will determine the influence of this process and therefore contribute to a more detailed insight in the effects of the privacy calculus. Another variable that is used to explain the privacy paradox in this study is peer pressure. Research is scarce that determines the effect of peer pressure on the willingness to disclose on SNS in the context of privacy issues. Peer pressure in a social environment as it is on Facebook is important to consider besides the rational privacy calculus.

On the one hand, the conclusions can be used to consult SNS-providers to find a way of encouraging users to provide more information. On the other hand, this study serves as a basis to understand the motivations to disclose information and can therefore be used to design appropriate information for users that explains how they can benefit from SNS whilest protecting their data.

# 2. Theoretical framework

This study investigates the influence of peer pressure, privacy concerns, perceived benefits and perceived risks on the willingness to disclose personal information of Facebook users. Willingness to disclose personal information is differentiated into disclosure on user's profile and disclosure by communicative actions on Facebook. Both types of disclosure are described in the first part of this chapter. After that, general privacy concerns are explained. The direct and the indirect influences of privacy concerns on the willingness to disclose personal information are described in the second part of this chapter. This study focuses on the privacy calculus as a possible explanation of the privacy paradox. In the third part, the privacy calculus, perceived risks and perceived benefits are explained. After describing the rational privacy calculus, the possible influence of peer pressure is described.

# 2.1 Willingness to disclose personal information

Disclosing information is the first step to participating in online networks. If one wants to participate on Facebook, one first has to create an account and provide personal information. After accomplishing the account, disclosing personal information continues. By posting messages, liking pages, uploading photos, Facebook users disclose a great amount of their personality.

Disclosing personal information about oneself is often known as self-disclosure. Selfdisclosure means revealing personal information to others (Archer, 1980). Disclosure of personal information on SNS includes the information given on the profile and the communicative actions users perform (Zlatolas et al., 2015; Lee, Ahn, & Kim, 2014). By participating in an online network, users update their status, comment or like other messages, share locations and much more. These communicative actions also provide personal information and are thus part of this construct. This is in line with the definition described by Krasnova et al. (2010) where personal information disclosure is defined as "*any message about the self that a person communicates to another*" (Wheeless & Grotz, 1976, p.47). This study uses the term personal information disclosure to describe any form of information about the self that an individual provides on Facebook. In this study, disclosure of personal information is differentiated in two dimensions: profile information and communicative actions on Facebook.

# **Profile information**

Facebook users provide personal information on their profiles. This information is mostly static like name, date of birth and gender and is not edited regularly. Many studies analyzed the amount of information revealed on user's SNS-profile (e.g. Nosko, Wood & Molema, 2010; Chang & Heo, 2014). In order to examine the disclosure behavior on Facebook, Nosko et al. (2010) developed a scoring tool with three different types of self-disclosure and used it on 400 Canadian Facebook profiles. Their results show that around 25% of all possible information, which can be disclosed on Facebook profiles, was disclosed. Like Nosko et al. (2010) also Chang and Heo (2014) analyzed the information given on the profiles of SNS users. Additionally, Chang and Heo (2014) explore factors that explain students' information disclosure on Facebook. They differentiate between three categories of self-disclosure: basic personal information, sensitive personal information and highly sensitive personal information. Basic personal information includes gender, languages spoken and hometown. Sensitive personal information contains the profile picture, e-mail and work experience.

Highly sensitive personal information includes items like phone numbers, political and religious views and home address. This categorization is reviewed and approved by social media professionals and heavy users of Facebook (Chang & Heo, 2014). The research question is whether different motives influence the degree of information disclosure on Facebook. They conducted an online survey that was completed by 192 US college students. Their results show that social motives like sending messages and updating status on Facebook predict all three degrees of information disclosure behavior. Also the time spent on Facebook influences all three degrees of self-disclosure (Chang & Heo, 2014). The other variables (numbers of Facebook friends, perceived benefits, perceived risks, gender and trust in Facebook) do not influence all types of self-disclosure, but at least one of the three types. The researchers stress that different factors have influence on different types of self-disclosure and that especially social motives influence the disclosure-behavior among students. However, profile information is not the only type of personal information that users provide on Facebook. By actually using and communicating on Facebook, they also reveal a certain amount about themselves.

#### **Communicative actions on Facebook**

Research is scarce that includes communicative actions in the construct of self-disclosure or disclosure of personal information. Taddicken (2014) did include other forms of selfdisclosure than providing information on SNS-profiles. She analyzed the privacy paradox in the Social Web (including various forms like SNS, blogs and sharing platforms) and differentiates between factual and sensitive information disclosed in the Social Web. Factual information includes last name, date of birth, profession and postal address. Sensitive information includes photos, experiences, thoughts, feelings and concerns. She found significant difference between these types of personal information disclosure and concludes that it is necessary to differentiate between different forms of personal information. The majority of the 2.739 respondents of her study disclosed factual personal information, but considerably fewer users disclosed sensitive information. The sensitive information described by Taddicken (2014) is mainly disclosed by communicating with others on SNS while the factual information is shown in the user's profile. The results stress the need to include communicative actions in the measurement of this construct. Lee, Ahn and Kim (2014) analyzed personality traits and self-presentation on Facebook and distinguish between disclosing information on one's Wall and at the News Feed. What is described by Lee et al. (2014) with "Wall" is defined in this study as the user's profile. The News Feed shows the activities like commenting, liking or sharing of friends (Lee et al., 2014). This is defined in this study as communicative actions. Lee et al. (2014) found different influences of various personality traits on both disclosure types and stressed the need to differentiate personal information disclosure on Facebook.

Koehorst (2013) also includes communicative actions in his construct of providing personal information. He determined predictors of adolescences' disclosure of personal information on Facebook. In his study, he involved information revealed by the actual use of Facebook like commenting, updating status, sharing information and liking. These communicative actions are dynamic information and not static as in user's profiles. By using Facebook, they create new content, share new information and therefore continuously provide new personal information. Examples of communicative actions on Facebook are "liking", "tagging", posting, sharing and commenting various types of information.

The study of Chang and Heo (2014) stress the different influence of variables on information disclosure types. The results show that perceived benefits of using Facebook only influence the basic and sensitive personal information. The disclosure of highly sensitive personal information is independent of the perceived benefits. This means that no matter how many benefits users perceive, these benefits would not influence whether users would provide highly personal information or not. The current study may be able to change the view on this relationship due to the addition of new variables. Peer pressure or privacy concerns may influence the impact of perceived benefits which may have consequences on one or all types of willingness to disclose personal information.

# 2.2 Privacy concerns

In order to understand privacy concerns, the term privacy is defined and set in the context of Facebook. Privacy is discussed in various disciplines and thus defined in different ways. A frequently used definition is privacy as the right to be left alone (Warren & Brandeis, 1890 in Dinev, Xu, Smith & Hart, 2013). For the purposes of this study, a more detailed term of privacy is used: information privacy. This refers to the right to determine how information about oneself is communicated to others (Lowry, Cao & Everard, 2011). In this study, worries about a possible loss of information privacy are relevant. SNS users are vulnerable to lose their information privacy by providing personal information on SNS (Taddicken, 2014). A certain amount of the given information is public and other people or institutions are able to use this data for their own purposes. Many SNS users do not want their personal data to be misused by others and state that they consider their privacy as important (Debatin et al., 2009). This indicates that many individuals perceive concerns about their privacy while disclosing personal data on Facebook. Privacy concerns can be defined as worries about who will have access to disclosed information on SNS (Zlatolas, Welzer, Hericko & Hölbl, 2015). The feeling of losing one's information privacy not only includes the access of others as described by Zlatolas et al (2015), but also includes the flow of the given personal information. When users disclose information on Facebook, the data remains in the internet and can be transmitted or copied for different purposes. Min and Kim (2015) define privacy concerns as the extent to which SNS users are worried about the flow of their personal information, including the transfer and exchange of that information on SNS. They included the worries about the flow of personal information to the definition of privacy concerns. Kehr, Wentzel, Kowatsch and Fleisch (2015) set privacy concerns in another context and define it as a pre-existing attitude that describes one's tendency to worry about information privacy. In the current study, privacy concerns are defined as a pre-existing attitude that indicates to what extent users are worried about the flow of their given information and who has access to their provided information and on SNS. Privacy concerns are often analyzed in relation with personal information disclosure on SNS. However, the influence is not clear yet, because several studies reveal different results regarding the relationship of privacy concerns and personal information disclosure. The differences are described in the following.

#### 2.2.1 The direct influence of privacy concerns on personal information disclosure

Some studies determine a significant negative relationship and show that when individuals have higher privacy concerns, they are more willing to protect their data and to disclose information responsibly (e.g. Krasnova et al., 2009, Liu, Ang & Lwin, 2013, Zlatolas et al., 2015). Krasnova et al. (2009) analyzed the motivations for disclosing personal information on SNS and determined two significant factors: perceived enjoyment and privacy concerns. Their results show that privacy concerns have a negative and perceived enjoyment a positive

influence on self-disclosure. This means that, the more people are concerned about their privacy, the less they disclose. However, disclosure is also influenced in a positive way. The more users enjoy using SNS, the more they disclose personal information. There are more factors than perceived enjoyment and privacy concerns influencing personal information disclosure. Zlatolas et al. (2015) studied relevant literature in the context of privacy and self-disclosure on SNS and filtered out the most important factors. They analyzed the influences of all the constructs and determined a significant influence of privacy awareness, privacy social norms, privacy policy, privacy value and privacy concerns on personal information disclosure. The relationship between privacy concerns and self-disclosure on SNS is negative.

This current study aims to explain the privacy paradox by using the privacy calculus theory and adding the influence of peers. Therefore, especially the relationships between disclosing personal information, privacy concerns, privacy social norms, and perceived enjoyment as benefit of using SNS of the studies of Zlatolas et al. (2015) and Krasnova et al. (2009) are relevant. All in all, privacy concerns (among other variables) may serve as a reason for decreasing the extent of disclosing personal information. Therefore, the first hypothesis is:

# Hypothesis 1: Privacy concerns influence the willingness to disclose personal information.

# 2.2.2 The indirect influence of privacy concerns on personal information disclosure

In contrast to the above described studies, there are also studies that found no or only weak relationships between privacy concerns and self-disclosure and thus determine the privacy paradox (Acquisti & Gross, 2006; Taddei & Contena, 2013; Taddicken, 2014; Kehr et al., 2015). Privacy paradox means that people provide personal information despite privacy concerns. This means that privacy concerns do not sufficiently explain user's behavior on Facebook regarding the disclosure of personal information and supports the assumption of other influencing variables.

Acquisti and Gross (2006) set up a study to understand the privacy and security concerns in relation to the exponential growth in membership of SNS. Their results show that privacy concerns are a weak predictor of individual's membership and use of Facebook. They conclude that despite privacy concerns, SNS users continue disclosing personal information. That behavior is described by the term privacy paradox. Taddei and Contena (2013) could not even find significant relationships between privacy concerns and self-disclosure on SNS. They determined an indirect influence of privacy concerns on self-disclosure and stress the need to involve other mediating or moderating variables to explain self-disclosure on SNS. Taddicken (2014) involved mediating factors of self-disclosure in her study and asked more than two thousand German Internet users to fill in an online survey about influencing factors of the privacy paradox. Taddicken (2014) not only focuses on SNS, she also includes blogs, wikis, discussion forums and picture and video sharing platforms in her analysis. The results indicate that privacy concerns do not significantly affect self-disclosure, but age, number of applications, social relevance of the application and general willingness to provide personal information mediate this relation. These examples show that there are other, mediating variables that influence the relationship between privacy concerns and self-disclosure.

Mediating variables may give an explanation for the privacy paradox. Kehr et al. (2015) analyzed factors that influence the decision making to disclose personal information via mediating variables. The researchers conducted a cross-sectional online experiment with 148 students. The experiment was presented as market research for a mobile application to improve driving skills. The findings indicate that the impact of privacy concerns on the willingness to disclose personal information is mediated by situational factors. These situational factors are perceived risks of information disclosure and perceived benefits of information disclosure. Both factors form the privacy calculus that describes the weighing of risks and benefits in a decision making process. The results show that situation-specific considerations, in other words the balancing of risks and benefits, are able to override privacy concerns. That means that although people have concerns about their privacy, they disclose personal information, because the perceived benefits overweigh the perceived risks of information disclosure. This is an explanation for the privacy paradox. The direct influence of privacy concerns via the situational privacy calculus on the willingness to disclose.

These studies emphasize a strong effect of mediating factors on the relationship between privacy concerns and the willingness to disclose personal information. In this study, the perceived risks and benefits as mediating variables are analyzed in order to explain the privacy paradox. In line with Malhotra, Kim, Agarwal (2004), Kehr et al. (2015) and Zhou and Li (2014) it is assumed that privacy concerns affect perceived risks. SNS users who are greatly concerned about their information privacy suspect that others who get their personal information misuse it (Zhou and Li, 2014). These concerns increase perceived privacy risk of SNS users. So, the second hypothesis indicates that the more concerns an individual has, the more risks are perceived.

# Hypothesis 2: Privacy concerns influence perceived risks.

Perceived risks and perceived benefits are situation-specific considerations that are outweighed in a process called the privacy calculus. If privacy concerns influence perceived risks, it is assumed that privacy concerns also influence perceived benefits of information disclosure. Research is scarce that determines this relationship. Therefore, this study bridges this gap by determining the influence of privacy concerns on perceived benefits of information disclosure. Perceived benefits are the counterpart of perceived risks of disclosing personal information in this study. Malhotra et al. (2004) analyzed the influence of privacy concerns on the intention to disclose personal information and also take mediating variables into account. In their study the trusting beliefs serve as a counterpart of risk beliefs and not perceived benefits like in this study. Malhotra et al. (2004) determine a negative relationship between privacy concerns and trusting beliefs. It is assumed that perceived benefits as a counterpart of perceived risks in this study is also influenced by privacy concerns. An individual, who is greatly concerned about his/her privacy, may perceive less benefits of information disclosure than individuals with less privacy concerns. So, the third hypothesis is:

Hypothesis 3: Privacy concerns influence perceived benefits.

# 2.3 Privacy calculus: Balancing perceived risks and perceived benefits

The privacy calculus is a possible explanation for the privacy paradox (Wilson et al., 2012; Kehr et al., 2015). Researchers term the risk-benefit calculation of a decision to disclose personal information the privacy calculus. It is defined as "*a cognitive process in which people assess future consequences of present choices by weighing the potential costs and benefits of sacrificing some degree of privacy to gain better outcomes*" (Min & Kim, 2015, p. 841). Thus, the calculus is a rational process that encompasses weighing the perceived risks

against the perceived benefits of a present disclosure. When the perceived benefits outweigh the perceived risks, a disclosure of personal information is likely. However, when more risks than benefits are perceived, an individual would rather not disclose personal information.

The privacy calculus is situation-specific (Wilson et al., 2012; Kehr et al., 2015). For each new situation, Facebook users weigh the risks and benefits of disclosing personal information. The decision depends on situational factors and is considered every time all over again. Individuals calculate what they might lose and gain by disclosing personal information in a certain situation. Thereupon, they decide whether to disclose or not. Perceived risks describe the loss and perceived benefits the advance what users expect to face when disclosing information.

Although the perceived benefits and perceived risks are often measured, it is not clear how the risks and benefits exactly influence each other. It is assumed that perceived benefits reduce perceived risks of disclosing personal information on SNS. Previous studies found evidence for this relationship (e.g. Malhotra et al., 2004, Debatin et al., 2009; Dinev et al., 2013; Zhou and Li, 2014; Kehr et al., 2015). SNS users are more willing to accept risks of information disclosure as long as they have the feeling that the benefits overweigh these risks. Research is scarce that analyze the influence of perceived risks on perceived benefits or the mutual influence of both factors. Due to the assumption that the privacy calculus is a process wherein perceived benefits and perceived risks mutually influence each other, this study determines this relationship in an explorative way. The influence of both factors on the willingness to disclose personal information isd determined, but the calculus as a process of balancing risks and benefits is analyzed in an explorative way.

# 2.3.1 Perceived risks

Generally, risks are uncertainties arising from potential negative outcomes and a potential unwanted behavior of the other party that results in losses (Xu, Dinev, Smith & Hart, 2008). In relation with disclosing personal information on SNS, perceived privacy risks are defined as expectations of uncertainties and losses associated with online information disclosure (Xu et al., 2008, Zhou et al., 2014). Risks related to information disclosure are plentiful and depend on the type and quantity of information that is revealed (Beldad, De Jong & Steehouder, 2011). Perceived risks while engaging in online communications are for example unwanted access of personal data by third parties, online stalking, identity theft, bullying and unwanted sharing private information to the world (Sharma & Crossler, 2014).

Thus, perceived privacy risks are possible negative consequences that may come along with a particular information disclosure (Xu et al., 2008). It depends on the situation and information that is given and is related to the possible following negative consequences. In contrast, privacy concern is an attitude that already exists and is independent of the situation (Kehr et al., 2015). People are generally worried about their privacy and that is described by the term privacy concerns and not with the term perceived risks. Individuals already have privacy concerns before they consider what types of privacy risks they can expect by a certain behavior.

Previous studies have shown significant effect of perceived risk on information disclosure in the context of privacy and SNS. Lee, Park and Kim (2013) examine why people share their context information on SNS and elaborated the balancing of perceived benefits and risks and determined that both factors influence the intention to share whereas benefits caused greater impact than risks. Based on the Communicative Privacy Management theory of Petronio

(2002), Lee, Park and Kim differentiated between five types of risk: security, stigma, relational, face and role risk. Security risk is the possibility that one's security is threatened including physical risk and economic loss. Stigma risk can occur when one is not accepted and treated disrespectfully due to disclosing private information. Relation risk refers to negative consequences regarding one's relationships. Face risk is the possibility of losing one's face or in other words get embarrassed or ashamed. Role risk is important for the personal standing of an individual, for example a teacher regarding his/her students.

Lee et al. (2013) identified all types of risk except of stigma risk in their interviews. Security risk is the most mentioned risk (65.9%). The interviewees are seriously concerned about being monitored by people they do not know. Security risk is followed by face risk (22.0%), which is a crucial factor affecting non-disclosure according to Lee et al. (2013). Role risk (7.3%) is often mentioned by employees or members of organizations. Relational risk (4.9%) is the type of risk that is mentioned the least. Interviewees explain that their relationships are not threatened by context information per se, but that the timing and the contents of provided information are important. Security risk and face risk are thus the most important risks regarding context information disclosure. The differentiation of risk described by Petronio (2002) and Lee et al. (2013), it is measured in this study. Although relational risk is insignificant in the study of Lee et al. (2013), it is measured in this study. There are three reasons for including relational risk. First, the relationships on Facebook are crucial for users to use the online network. Second, this study focuses on personal information and not context information. Third, two of the four measured benefits are related to relationships on Facebook.

It is assumed that perceived risks – regardless what type of risk – are able to override privacy concerns. In this study the different types of perceived risks are analyzed as a mediating variable between privacy concerns and willingness to disclose personal information. Zhou and Li (2014) examine the continuance usage of mobile SNS in China. They analyzed the influence of three different processes of social influence, privacy concern, privacy risk and trust on continuance usage. The results show that all variables significantly influence continuance usage of SNS. Additional, privacy concerns and trust influence privacy risk (Zhou and Li, 2014). This means that privacy risks mediate these relationships with continuance usage. The influence of privacy concerns on continuance usage is less than via privacy risks. This fits in the assumption of this study that perceived privacy risks are able to override privacy concerns. Also Kehr et al. (2015) found evidence for a negative relationship between perceived risks of information disclosure and the willingness to disclose personal information. If Facebook users expect risks when considering whether or not to disclose personal information, the perceived risks are likely to reduce the willingness to disclose information. Considering the assumed influence of the different types of perceived risk on the willingness to disclose personal information, let us formulate the following hypotheses.

Hypothesis 4a: Perceived security risk negatively influence the willingness to disclose personal information.

Hypothesis 4b: Perceived face risk negatively influence the willingness to disclose personal information.

Hypothesis 4c: Perceived relational risk negatively influence the willingness to disclose personal information.

# 2.3.2 Perceived benefits

As a counterpart to perceived risks in the privacy calculus, perceived benefits are included in this study. Perceived benefits are the individual perceptions that a SNS user will derive value from the disclosure of personal information (Wilson & Valacich, 2012). The type of the assumed value depends on the individual. For example, some users disclose personal information due to the perceived advantage of communicating with friends whereby others reveal information because they like to express themselves. Krasnova, Spiekermann, Koroleva and Hildebrand (2010) identified four benefits that influenced self-disclosure on SNS. These four benefit-types are (1) convenience of maintaining existing relationships, (2) new relationship building, (3) self-presentation, and (4) enjoyment and are empirically supported by the findings of Cheung, Lee and Chan (2015).

# Convenience of maintaining existing relationships (CON)

Facebook facilitates users with many features that make maintaining relationships easy and without much time and effort (Krasnova et al., 2015). By using Facebook, people are able to connect online with their offline friends from for example high school, work, sports or others from the physical world. This makes communication and maintaining relationships easy. Individuals primarily use Facebook to keep in touch with their friends and acquaintances (Ellison, Steinfield & Lampe, 2007). When users want to inform their friends and acquaintances about for example a new job, they only have to update their status and everybody is informed. Individuals are able to reach many friends just with one click and therefore safe time. Time-saving as a type of convenience motivates users to disclose personal information (Hui, Tan & Goh, 2006). Convenience of maintaining relationships is the most essential factor that explains the disclosure of personal information on SNS (Krasnova et al., 2010). Therefore, the fifth hypothesis is:

Hypothesis 5a: Perceived convenience of maintaining existing relationships positively influence the willingness to disclose personal information.

# New relationship building (RB)

As described in the study of Nosko et al. (2010), people use SNS to find new relationships. SNS connect a wide range of people and users can easily get in touch with each other. By joining interest groups, watching the friend list of friends or specifically searching for persons, users can communicate with unknown individuals. These new relationships may provide individuals with useful information or new perspectives (Ellison et al., 2007). According to Nosko et al. (2010), SNS users who are seeking new relationships provide a great amount of personal information. They reveal a lot of information about themselves to get in touch with like-minded people. A great amount of information helps others to find that person in the network and it also serves as a basis for the first communication (Krasnova et al., 2010). People who have the same interests can contact this person and they can communicate about their hobbies. Thus, users perceive the opportunity to build new relationships via Facebook as advantageous and may disclose more information due to this perceived benefit. So, the next hypothesis is:

Hypothesis 5b: The opportunity of building new relationship positively influences the willingness to disclose personal information.

# Self-presentation (SP)

One benefit of disclosing personal information on Facebook, is presenting oneself. Selfpresentation is a central element of engagement in Social Network Sites (Boyd, 2007). There are different ways to manage one's self-presentation on Facebook (Lee, Ahn & Kim, 2014). On the one hand, users can manage their self-presentation on their profiles including pictures and interests and on the other hand, they are also able to present their identity by actively liking, commenting or sharing information on Facebook (Lee, Ahn & Kim, 2014). Thus, users have many different opportunities to present themselves in a positive way. On Facebook, users can build up an impression about themselves as they want. In contrast to face-to-face communication in the physical world, Facebook users are able to present only desirable information about themselves (Krasnova et al., 2010). This is why self-presentation on Facebook is attractive. Users can provide information which they are proud of and build up a positive image about themselves. Negative information can be ignored and not revealed. Therefore, people who like to present and express themselves on Facebook are assumed to be very willing to disclose personal information.

Hypothesis 5c: Perceived benefits of self-presentation positively influence the willingness to disclose personal information.

# Enjoyment (EN)

People enjoy conversations on SNS (Krasnova et al., 2010). They communicate with friends from their physical world and get in touch with new individuals. During conversations, users disclose personal information by sharing experiences, communicate about shared interests or discuss political views. Not only conversations are perceived as joyful, also other opportunities such as watching videos, playing games or reading interesting articles generate fun (Krasnova et al., 2010). While using Facebook and watching videos or playing games, users do not disclose personal information directly. However, after perceiving fun with the given information on Facebook, people are for example able to klick on the "like"-button to express that they like it. With affect-driven features as the "like"-button or the possibility to share interesting and enjoyable information, Facebook motivates users to provide personal information like the opinion about for example a video (Krasnova et al., 2010). Users provide personal information as they reveal that they like this particular article, video or game.

It is assumed that individuals perceive conversations on Facebook as enjoyable and are willing to disclose personal information to take part in this communication. Enjoyment may also influence the willingness to disclose by affect-driven Facebook-features like the "like"-button. Hence, there are two ways how perceived enjoyment may influence the willingness to disclose. On the one hand, the perceived enjoyment of disclosing personal information per se may affect the willingness to disclose. On the other hand, perceived enjoyment of using Facebook like watching videos or playing games motivates users to disclose personal information. Hui et al. (2006) state that providers convince users to disclose personal information through perceived enjoyment and fun. Also Krasnova et al. (2009, 2010) and Cheung et al. (2014) empirically tested the influence of enjoyment on personal information disclosure and determined a significant positive relationship. So, the next hypothesis is:

Hypothesis 5d: Perceived enjoyment positively influences the willingness to disclose personal information.

# 2.4 Peer pressure

In order to understand why individuals disclose personal information on Facebook despite privacy concerns, the perceived risks, perceived benefits and peer pressure are analyzed in this study. It is assumed that besides privacy concerns, also peer pressure as a pre-existing variable impacts the willingness to disclose personal information on Facebook. Peer pressure is investigated due to the social environment on Facebook and as a counterpart of the rational decision of the privacy calculus. Peer pressure is defined as the feeling to be obliged to do the same as one's friends (De Souza and Dick, 2009). When for example friends show pictures of their holidays, individuals feel obliged to show holiday pictures, too. It is not necessary that friends ask an individual to do the same. Peer pressure also happens when individuals only observe the behavior of friends or peers (Böhme & Pötzsch, 2012). Böhme and Pötzsch (2012) define the influence of peers as one's tendency to mimic the disclosure behavior of other people. Cheung et al. (2015) stress the observation environment on SNS. Users can easily see what their friends like, say and do. This observation creates pressure to disclose personal information (Cheung et al., 2015). Observation of friend's disclosure behavior is described as indirect peer pressure. On Facebook, it is also possible that friends ask individuals to, for example, "like" their pages or suggest posting something. So, peers are able to create pressure actively and in a direct way. In this current study, peer pressure is defined as the feeling to be obliged to copy the observed disclosure behavior of one's friends on Facebook. Peer pressure can occur in a direct or indirect way. It is seen as a pre-existing variable like privacy concerns. Peer pressure already exist and occurs before individuals start balancing risks and benefits in order to make a decision whether to disclose personal information on Facebook.

Quan-Haase and Young (2015) found evidence for the supposed influence of peer pressure on SNS. The researchers analyzed the gratifications obtained from joining and using Facebook. They conducted a survey and interviews with Canadian undergraduate students to identify the motivations to use Facebook. The results of the survey show three major gratifications of joining Facebook. 85% of the participants join Facebook because a friend suggested it, 49% join it because everyone they know is on Facebook and 46% join it to help others keep in touch with him/her. In the interviews, the participants point out three key motivations for joining Facebook: Peer pressure, social connectivity and curiosity. The two first gratifications for joining Facebook resulted from the survey ("Friend suggested it" and "Everyone I know is on Facebook") belong to peer pressure (Quan-Haase and Young, 2015). Peer pressure, defined by the two items, is the reason to join Facebook for eight interviewees, social connectivity for seven and curiosity for four interviewees. Peer pressure is thus the strongest motivation to join Facebook. An individual's peer network exerts social pressure and people start using it to be part of the network and to avoid social isolation (Quan-Haase and Young, 2015).

Whereas Quan-Haase and Young (2015) support the influence of peer pressure on using Facebook, De Souza and Dick (2009) emphasize the impact of peer pressure on information disclosure on SNS. Although they tested the influence among Australian children between 12 and 18 years, the results are relevant for this study because they emphasize the influence of peer pressure on information disclosure. This is also valid for the results of the study of Böhme and Pötzsch (2012). The researchers set up a study to analyze peer effects in voluntary disclosure of personal data. They used field data from online social lending sites, analyzed the content of these sites and determine the influence of peers. The results show

that peers influence one's decision whether to disclose personal data or not. Social lending sites are not the same as Social Network Sites, but nevertheless the findings of Böhme and Pötzsch stress the influence of peer pressure on information disclosure. Therefore, it is assumed that peer pressure influences the willingness to disclose personal information on Facebook.

#### Hypothesis 6: Peer pressure influences the willingness to disclose personal information.

Research is scarce that analyze the influence of peer pressure on perceived risks and perceived benefits of disclosing personal information on SNS. This study bridges this gap and examines the influence of peer pressure on willingness to disclose personal information as well as perceived risks and perceived benefits of information disclosure. Peer pressure is not part of the situational process known as privacy calculus. It already existed before the decision to disclose personal information is considered. Therefore, the construct peer pressure is seen as a pre-existing factor that influences the perceived risks, perceived benefits and the willingness to disclose personal information. Koroleva, Brecht, Goebel and Malinova (2011) analyzed the behavior of teenagers on SNS. The results show that teenagers balance the costs and benefits and therefore behave prevalent rationally on SNS. Besides the rational decision, also peer pressure plays a significant role in this process (Koroleva et al., 2011). They reveal that peer pressure affects perceived costs and benefits of using SNS and therefore strongly influences teenager's actions on SNS.

Peer pressure may support the perceived risks of information disclosure of a Facebook user. When, for example, a friend tells an individual that he/she read about stolen identities and is afraid about disclosing his/her personal information on Facebook. The individual may than think about the possible risks of disclosing personal information and perceives more risks than without the influence of his/her friend. In this case, peer pressure could negatively influence the willingness to disclose personal information by strengthen perceived risks. However, peer pressure could also reinforce perceived benefits. If the friend would not tell an individual about the fears and threats of disclosing information, but about the advances he had by disclosing information on Facebook, the individual would think about the advances and may perceive more benefits. Peer pressure could also occur, when an individual observes the friend's behavior. He/she may see that friends participate on events posted on Facebook, join interesting groups or much more. This apparently shows the benefits of disclosing personal information and may therefore positively influence individuals. The influence of peer pressure may depend on the way peer pressure is performed. Therefore, peer pressure is investigated in this study. The next hypotheses are:

#### Hypothesis 7: Peer pressure influences perceived risks.

Hypothesis 8: Peer pressure influences perceived benefits.

# 2.5 International differences

Even though Facebook is an American organization, it is used by more than 1.59 billion users worldwide (Facebook, 2015). There are 23 million German users (Statista, 2016) and 10 million Dutch users (Statista, 2016), who use the international Social Network Facebook. Although Germany and the Netherlands are neighboring countries, they do have different cultures (Hofstede, Hofstede, & Minkov, 2010). Uilenberg (2015) used the classification of cultural dimensions of Hofstede to analyze differences between German, Dutch and Indonesian consumers regarding the willingness to disclose personal information when shopping online. The results of the study show that there are significant differences between German and Dutch consumers concerning the willingness to disclose personal information (Uilenberg, 2015). German respondents are less willing to disclose personal information and also perceive more risks than Dutch respondents (Uilenberg, 2015). Additionally, other studies found significant differences between different cultures or nations in the context of Social Network Sites (e.g. Petley, 2013, Falk and Riel, 2013, Krasnova and Veltri, 2011). Krasnova and Veltri (2011) state that if Germans have to make a decision about self-disclosure, they are driven by privacy concerns. In contrast, Americans emphasize trust stronger than privacy concerns when they decide to disclose personal information on SNS. The strong emphasize on privacy may influence the willingness to disclose personal information. Furthermore, the German's strong sense of privacy may be one reason why German and Dutch Facebook users differ regarding the willingness to disclose personal information. In this study, the influences of the different factors that affect the privacy paradox and the willingness to disclose personal information. Butch Facebook users differ regarding the willingness to German and Dutch Facebook users between the different factors that affect the privacy paradox and the willingness to disclose personal information.

# 2.6 Research model

The research model with all variables and the assumed relations are shown in figure 1. The eight hypotheses are shown in the figure 1 and the list of all formulated hypotheses can be found in Appendix D.



Figure 1: Research model

# 3. Research design

In order to answer the research question of this study (*To what extent do privacy concerns, peer pressure, perceived risks and perceived benefits affect an individual's willingness to disclose personal information on Facebook?*), an online survey was conducted. The survey included 80 items to measure the constructs stated in the model (see figure 1). A survey is an appropriate method to examine privacy concerns and related constructs (Preibusch, 2013). This study aimed to reach many participants to make representative statements. An online survey is well suited to obtain data from many participants without too much time and effort (Dooley, 2001). To ensure that the used items in the survey are reliable, most of the scales are selected from existing literature. These scales are already used and have proven their reliability. The research instrument with the exact scales is described in the following. First the choice to conduct the research with participants of various ages will be discussed. After describing the research instrument, the pre-test and its results are explained. On the basis of the results of the pre-test, the research instrument was adapted to be more comprehensive for the participants. The final survey was distributed to a broad range of people which is described in the last part of this chapter.

# 3.1. Participants

According to Statista (2015b), users between 18 and 34 ages cover more than the half (51.87 %) of all Facebook users in Germany in 2014. The largest group of Facebook users worldwide is users between 25 and 34 ages (Statista, 2014). However, we are not only interested in a certain group, but in the whole population of Facebook users. That is the reason why all people of 18 years and higher were asked to participate in the survey. Thus, the participation in the survey was not limited qua age expect of the minimum age. It was chosen to restrict the age at a minimum of 18 years due to reasons of feasibility and research ethics. According to research ethics, participants under 18 years need to hand in a confirmation of their parents or legal guardians that allows them to participate in the survey. We wanted to avoid the necessity of confirmations and decided to include only participants 18 years and older. Furthermore, there were no other limitations, except for the necessity to have an active account on Facebook to ensure that the participant was familiar with the topic of the survey.

# 3.2. Research instrument

The research instrument consisted of 80 items and was distributed in the Netherlands and in Germany. In the beginning, participants had to answer questions about their Facebook profile and their use of Facebook. The question whether they have a Facebook profile or not was crucial. When they answered it with "no", they were led to the end of the survey, because it was only reasonable to include data from actual Facebook users. After completing the questions about Facebook in general, the participants were asked to rate to what extent they are willing to disclose various types of information. Then, statements about the Facebook use of friends had to be rated to analyze the effects of peer pressure. After that, statements about general perceived benefits and perceived risks had to be rated, followed by statements about privacy concerns. Finally, the participants were asked to fill in demographic data like age, nationality, gender and educational status. The participants had the opportunity to rate on a 5-point Likert-Scale, ranging from 1 for 'strongly agree' to 5 for 'strongly

disagree'. This answering scale was used for all items, except the items about the participants Facebook profile, Facebook use and their demographic data.

#### **Facebook experiences**

The first question "Do you have a Facebook profile?" was crucial to select useful participants. The other questions were asked to get insights in the frequency of the participant's Facebook use. The questions were based on the survey of Koehorst (2013) and the answer opportunities were based on the average of Facebook use (e.g. Statista 2015e).

#### Willingness to disclose personal information

In this study, willingness to disclose personal information had two dimensions: disclosure on the user's profile and by performing communicative actions. In order to measure the willingness to disclose personal information on the user's profile, the registration on Facebook was executed to determine what information is asked. The first four items are required information and the other eight items are example-items that were asked when creating a profile on Facebook. Of each step while creating the profile, two example items were chosen.

The items used by Koehorst (2013) were partly adapted to measure the willingness to disclose personal information by performing communicative actions on Facebook. The whole scale to measure intention to disclose personal information of Koehorst (2013) has a Cronbach's alpha of 0.83. Three items (items 7-9) were added to ensure that all possibilities of communicative actions on Facebook are considered.

#### Peer pressure

Ljepava, Orr, Locke and Ross (2013) developed the Facebook Peer Usage Questionnaire with the purpose of examining peer pressure that a participant might experience in relation with Facebook use. It consists of twelve statements with a good internal consistency ( $\alpha$ =0.82). The scale includes items that measure both direct and indirect peer pressure. Due to the good suitability for this study and the high internal consistency, the Facebook Peer Usage Questionnaire was used to measure peer pressure. Five questions were reformulated to measure peer pressure in relation to information disclosure.

#### **Perceived benefits**

To measure the perceived benefits, the items of Krasnova et al. (2010), which are also supported by Cheung et al. (2014), were used. Krasnova et al. (2010) identified four dimensions of perceived benefits regarding personal information disclosure on SNS and developed scales for each of them. They all have a good internal consistency: Convenience of maintaining existing relationships ( $\alpha$ =0.82), New relationship building ( $\alpha$ =0.70), Self-presentation ( $\alpha$ =0.86) and Enjoyment ( $\alpha$ =0.74). The scale of the fourth dimension, enjoyment, was extended by six self-developed items to ensure that enjoyment regarding information disclosure is measured. The items for enjoyment of Krasnova et al. (2012) were formulated in a way they cover Facebook use and not actual information disclosure (for example "I find Facebook entertaining"). Therefore, we developed additional items to measure the enjoyment of disclosing personal information per se (for example "I find Facebook entertaining").

# Perceived risks

In order to measure perceived risks, the items suggested by Lee et al. (2013) were used. The scales to measure security risk ( $\alpha$ =0.92) and face risk ( $\alpha$ =0.96) were adapted. There is no scale that measures relational risk, so the items were self-developed based on the results of the interviews of the study of Lee et al. (2013).

# Privacy concerns

Preibusch (2013) set up an article that serves as a guide to measure privacy concerns. In this article, he recommends using the scale of Smith, Milberg and Burke (1996) or Malhotra et al. (2004) in surveys. The original scale (Smith et al., 1996) consists of 15 items and covers different dimensions. Malhotra et al. (2004) adapted this scale, put it in the online context and added the Global Information Privacy Concern Scale (six items) to measure not only the different dimensions but also the general perception of privacy concerns. The whole scale used by Malhotra et al. (2004) has a composite reliability (CR) of 0.75 and average variance extracted (AVE) of 0.50. The Global Information Privacy Concern Scale measures the general privacy concerns and is therefore optimal for the purpose of this study. In this study, it was crucial to measure general concerns to ensure to distinguish these items from the scale that measures perceived risks. One item was added based on the study of Min and Kim (2015). This item ("I am concerned that someone can find information about me on Facebook that I want to keep private") fits well to the other items and may enhance the internal validity of the scale. Three items of the scale were removed by Malhotra et al (2004) to enhance internal validity. However, they were measured in this study, because they may be relevant and significant in the context of the Social Web.

# 3.3. Translation process

The survey was distributed in Germany and the Netherlands. Therefore, the original survey in English was translated into German and Dutch by independent translators. The researcher translated the survey from English to German. A second independent translator translated the German survey into Dutch and another translator translated the Dutch version into German again. Both German versions were compared and only little differences were found. By comparison, the formulations which were clearer and more accurate were used to keep the survey simple.

# 3.4. Pre-test

After finishing the translations of the survey, it was distributed to 15 participants to check it before distributing it to the whole population. Seven Dutch and eight Germans were asked to fill in the online survey by speaking out every thought they had. After completing the pre-test with all participants, the wording of some items were formulated more clearly, the introduction was shortened and the item "Imagine you create your Facebook-profile today. How willing are you to disclose following information? My real hometown" was deleted because of the great similarity of another item (my real address). The difference was not clear to the participants. These adaptations based on the results of the pre-test were made before distributing the survey.

# 3.5. Procedure

The survey was distributed and participants were recruited in several ways. First, the researcher sent the online survey to her friends and acquaintances via mail and social media. The researcher asked them to fill in the survey and also to spread the survey in their social networks. Second, the researcher posted the link to the online survey in various Facebook-groups and third responses of students of the University of Twente were gathered by publishing the online survey in a participant management system called SONA. Students from the faculty behavioral sciences at the University of Twente get credits by participating in surveys published on this system. They need these credits to successfully complete their first year.

To got the attention of possible participants and to made it more appealing to participate, every participant could win one of three Amazon-vouchers. This was explained in the first sentences of the survey-introduction. After reading the introduction, the participants answered the 80 questions of the survey. At the end of the survey, they were thanked for their participation and were invited to follow a separate link to disclose their name and e-mail address to win a 10-Euro-Amazon-voucher.

# 4. Results

In this chapter the results of the survey are described. First, the respondents are explained by their demographic data and their Facebook use. Second, the quality of the instrument is described by comparing the reliability of the actual and the original scales and by the validation of the constructs. Third, the descriptive results of the pre-existing variables, perceive benefits and perceived risks and the willingness to disclose personal information are shown. After that, the German and the Dutch model are tested separately. In the fourth part of the results chapter, the German model is tested at an aggregated level, on a detailed level and mediating effects are described. The Dutch model is described in the same way as the German model. At the end of this chapter, both models are compared based on the results of the previous analyses and the answers on the hypotheses. An overview with all hypotheses can be found in Appendix D.

# 4.1. Respondents

A total of 1410 responses were collected. 80 of these respondents indicated to have no Facebook-account and were excluded from the study. Ten respondents stated to be under 18 years and were consequently excluded. This resulted in 1320 responses. 409 of these responses were incomplete.

Possible reasons for the high amount of incomplete surveys are the possible languages, technical problems and a missing process-indication that shows respondents how much questions they have answered and how much questions are still remaining. The missing process-indication could demotivate respondents to fill in the questions. Some respondents reported to the researcher that they could not see the next arrow on the end of the page to get to the next questions. This is also observable in the data, because all the 409 incomplete responses stop at the end of a question group that was visible on one page. The first three questions were only visible on one page, but the questions about respondent's Facebook-use and about the willingness to disclose included more questions on one page. No incomplete survey stops in the middle of a question group. We decided to remove those 409 incomplete surveys from the dataset and analyze the remaining 911 complete responses.

# 4.1.1. Demographics

More than the half of the total number (n=911) of responses are Germans (n=708), followed by the Dutch (n=177) and international respondents (n=26). The group of international respondents includes nine Swiss, three Italians and 14 other nationalities; all of the international respondents filled in the German version of the survey. In further analysis, the international respondents are included in the German group, so that two groups of nationalities remain: Dutch (n=177) and German (including the internationals; n=734). Table 1 describes the demographic data of both groups.

		Ger	man	Du	tch	То	tal
		n	%	n	%	n	%
Responses		734	80.6	177	19.4	911	100
Gender	Female	492	67.0	131	74.0	623	68.4
	Male	234	31.9	45	25.4	279	30.6
	I don't want to	8	1.1	1	0.6	9	1.0
	reveal						
Age	18 - 24	285	38.8	124	70.1	409	44.9
	25 - 34	311	42.4	38	21.5	349	38.3
	35 and over	138	18.8	15	8.5	153	16.8
Level of	Low	39	5.3	35	19.8	74	8.1
Education	Middle	201	27.4	38	21.5	239	26.2
	High	494	67.3	104	58.8	598	65.6
Profession	Student	301	41.0	125	70.6	426	46.8
	Working	391	53.3	41	23.2	432	47.4
	Others	42	5.7	11	6.2	53	5.8

Table 1: Demographics of respondents	3
--------------------------------------	---

The demographic data show that there are more female than male respondents. Most of the respondents are between 18 and 34 years old and have a high education level. There are mainly students and working respondents. Due to the strong difference of numbers between German (n=734) and Dutch (n=177) responses, Mann-Whitney U tests had been performed to reveal systematical differences between the nationalities. The tests reveal significant differences in all five types of Willingness to disclose personal information: Willingness to disclose additional information, Willingness to disclose personal information by actively posting information and Willingness to disclose like-related information (see table 2).

Table 2: Differences between German and Dutch respondents on Willingness to disclose personal information

	Mean rank		U	z	Sig
	German	Dutch			
	n=734	n=177			
Willingness to disclose basic info	492.31	305.44	38.309	-8.516	p=.000*
Willingness to disclose contact info	465.34	417.27	58.104	-2.221	p=.026*
Willingness to disclose additional info	488.18	322.55	41.338	-7.525	p=.000*
Willingness to disclose personal info by	473.20	384.67	52.332	-4.026	p=.000*
actively posting info					
Willingness to disclose like-related info	467.84	406.91	56.270	-2.775	p=.006*
Note: *=p≤0.05					

The results in table 2 indicate that the German and Dutch respondents score significantly different on Willingness to disclose personal information. Therefore, the Dutch and the Germans are separated in further analysis and the research model is tested twice – once for German and once for Dutch respondents.

# 4.1.2. Facebook use of the respondents

In this section, the general Facebook use of the respondents is described to investigate whether it influences Willingness to disclose personal information. In the current study, Facebook use is measured as a control variable to ensure that respondent's Facebook use does not influence Willingness to disclose personal information without the researcher noticing the influence.

All of the German and Dutch respondents have a Facebook-account for at least one year or since 12 years (M=6.63, SD=1.95). On average, the Dutch respondents state to have their Facebook-account for a few more years (M=6.76, SD=1.86) than the German respondents (M=6.57, SD=1.91). The number of Facebook-friends in both groups ranges from 0 to 3500 (M=318.31, SD=260.01). German respondents state to have less Facebook-friends (M=304.77, SD=268.57) than the Dutch respondents (M=408.98, SD=245.68). The frequency of Facebook use and the duration per visit for all groups are described in table 3.

		German		Du	Dutch		otal
		n	%	n	%	n	%
Responses		734	80.6	177	19.4	911	100
Frequency of	Light users	94	12.8	9	5.1	103	11.3
Facebook use	Medium users	535	72.9	132	74.6	667	73.2
	Heavy users	105	14.3	36	20.3	141	15.5
Duration per visit	Less than six minutes	420	57.2	121	68.4	541	59.4
	6-30 minutes	273	37.2	53	29.9	326	35.8
	More than half an hour	41	5.6	3	1.7	44	4.8

#### Table 3: Facebook use of respondents

Note: Light users=online once or several times a week; medium users=online once or several times a day; heavy users=online more than 10 times a day)

Table 3 shows that most of the respondents in both groups are medium users (73.2%) and use Facebook for less than six minutes per visit (59.4%). With regard to Facebook use the groups of respondents are fairly similar; therefore no additional measures were taken.

# 4.2. Quality of instrument

In this chapter, the reliability and the validation of the constructs are explained. The reliability is shown by comparing the Cronbach's Alpha scores of the original and the actual scale. The validation of constructs is described in three parts: Validation of willingness to disclose personal information, validation of perceived risks and perceived benefits and validation of pre-existing variables. The results of the three validations are shown in this chapter, the measurements and the explanations of the validation results can be found in Appendix E.

# 4.2.1. Reliability of scales

To investigate the internal consistency of the scales used in this study, Cronbach's Alpha was calculated for each of the scales. Table 4 shows the original Cronbach's Alpha score in comparison with the scores of this study.

Scale	Subscale	Source	Original scores (α)	Actual scores (α)
Willingness to disclose		Self-developed	Not available	0.84
·		Sell-developed		0.04
personal information on				
user's profile				
Willingness to disclose		Koehorst (2013)	0.83	0.84
personal information by				
communicative actions				
Privacy concerns		Malhotra et al.	Composite	0.79 a
		(2004)	reliability of	
			0.75	
Perceived risks	Security risks	Lee et al. (2013)	0.92	0.89
	Face risks		0.97	0.86 a
	Relational risks		Not available	0.93
Perceived benefits	Convenience of	Krasnova et al.	0.82	0.83
	Maintaining	(2010)		
	Relationships			
	Relationship		0.70	0.81
	Building			
	Self-presentation		0.86	0.86
	Enjoyment		0.74	0.84 a
Peer Pressure		Ljepava et al.	0.82	0.85 a
		(2013)		

Table 4: Reliability of scales

Note: a = items PC4, FR1, EN1, EN8, PP4 and PP5 were checked in PCA and deleted to enhance reliability and validation of the constructs.

All Cronbach's Alpha scores are above the recommended minimum value of 0.7 and therefore the scales are seen as reliable and internal consistent. The actual Cronbach's Alpha scores of the scales of Peer pressure, Perceived benefits, Privacy concerns and Willingness to disclose personal information by communicative actions are even higher than the original scores. This is a positive indication for a comprehensible survey and a good internal consistency of the scales.

# 4.2.2. Validation of constructs

To test whether the scales actually measure the different constructs as expected, three principal component analyses (PCA) were conducted. First, a PCA was conducted on 21 survey questions to investigate the validation of the constructs Willingness to disclose personal information on user's profile and Willingness to disclose personal information by communicative actions. The first PCA revealed five components that are named as Willingness to disclose basic personal information, Willingness to disclose contact information, Willingness to disclose additional personal information, Willingness to disclose "like"-related information. The classification of the constructs and the factor loadings are shown in table 33 (Appendix E). Due to the results of the PCA, Willingness to disclose personal information is treated as one dimension with all sub constructs together and additionally as five separate sub constructs in further analyses.

Second, a PCA was conducted on 30 items to investigate the validation of the constructs Perceived risks and Perceived benefits. The second PCA revealed seven components, which are in general distributed as expected. The sub scales Convenience of maintaining relationships, Self-presentation, Relationship building and Security risks are supported. The subscales Face risks and Relational risks are merged and are named Social risks (see table 34, Appendix E). The Enjoyment scale is separated into two: Enjoyment of using Facebook and Enjoyment of disclosing personal information on Facebook (see table 34, Appendix E). All in all, the second PCA revealed one additional Perceived benefit and merge two Perceived risks. In further analyses, two types of Perceived risks (Social risks and Security risks) and five types of Perceived benefits (Enjoyment of using Facebook, Enjoyment of disclosing personal information on Facebook, Convenience of maintaining relationships, Relationship building, Self-presentation) are investigated. The dimensions Perceived risks and Perceived benefits with all sub constructs taken together are analyzed and additionally each sub constructs of the dimensions are investigated in further analyses. Due to the merging of Face risks and Relational risks to Social risks and the separating to Enjoyment of disclosing personal information and Enjoyment of using Facebook, the hypotheses are reformulated and can be found in Appendix D.

Third, a PCA was conducted on 19 items to investigate the validation of the pre-existing variables Privacy concerns and Peer pressure. The third PCA revealed three components. The interpretation of the data was similar to the pre-existing variables the survey was designed to measure with strong loadings of Peer pressure on one component (see table 35, Appendix E). Privacy concerns are divided into two constructs: Importance of privacy and Privacy concerns (see table 35, Appendix E). Based on the results of the third PCA, three pre-existing variables were tested in further research: Privacy concerns, Importance of privacy and Peer pressure. Privacy concerns and Importance of privacy are taken together in the dimension Privacy valuation. Both, the dimension and the sub constructs were measured in further analyses. Hypotheses one is therefore reformulated and can be found in Appendix D.

# 4.3. Descriptive results

After checking the quality of the instrument, an overview is given of how respondents valued the different constructs. The results of each constructs are described in the following sections. The results of the independent variables (Privacy valuation, Perceived benefits, Perceived risks, Peer pressure and all sub constructs) are based on a 5-point Likert scale, where 1 means "strongly agree" and 5 means "strongly disagree". The results of the dependent variables (five types of Willingness to disclose personal information) are also based on a 5-point Likert scale, where 1 means "very willing". In contrast to the independent variables, one answering option was added to describe that respondents did not provide information. When respondents had chosen the sixth answering option, they were not willing to provide certain information and actually did not provide it.

In the following sections, the descriptive results and the significance of the difference between German and Dutch respondents are shown (tables 5-7). The differences between the nationalities were tested with Mann Whitney U tests (see Appendix C for more details).

# 4.3.1. Pre-existing factors

The pre-existing factors are Importance of privacy, Privacy concerns and Peer pressure. Table 5 shows the descriptive results for German and Dutch respondents.

	German	Dutch	Sig	
	n=734	n=711		
Importance of privacy	M=1.83 (SD=0.75)	M=2.11 (SD=0.75)	p=.000*	
Privacy concerns	M=2.54 (SD=0.89)	M=2.71 (SD=0.77)	p=.005*	
Peer pressure	M=3.19 (SD=0.65)	M=3.05 (SD=0.55)	p=.004*	

#### Table 5: Descriptive statistics for pre-existing factors

Note: \*=p≤0.05; 5-point Likert scale (1="strongly agree"; 5="strongly disagree")

The results show that both groups emphasize privacy a lot. Privacy seems to be an important issue in their lives, it is significantly more important for German than for Dutch respondents. German respondents not only attach great importance on privacy, they also have significantly more privacy concerns than Dutch respondents. However, the values of privacy concerns are strong in both groups. Both Dutch and Germans state to have concerns about their privacy. The Dutch respondents are significantly more sensitive for peer pressure than German respondents, but both groups score around 3 and are therefore neither very sensitive to nor very ignorant of peer pressure.

#### 4.3.2. Situational factors

The situation-specific factors in this study are Perceived risks and Perceived benefits of disclosing personal information. In this study, these factors were measured with two types of risks and five types of benefits. The descriptive results of the different constructs are shown in table 6.

#### Table 6: Descriptive statistics for situational factors

· · ·	0		0.
	German	Dutch	Sig
	n=734	n=711	
Social risks	M=3.74 (SD=0.83)	M=3.86 (SD=0.68)	p=.204
Security risks	M=2.25 (SD=0.91)	M=2.35 (SD=0.80)	p=.139
Convenience of maintaining relationships	M=2.97 (SD=0.96)	M=2.75 (SD=0.87)	p=.003*
Self-Presentation	M=2.98 (SD=0.95)	M=2.74 (SD=0.88)	p=.002*
Relationship Building	M=3.39 (SD=0.99)	M=3.52 (SD=0.90)	p=.120
Enjoyment of using	M=2.67 (SD=0.76)	M=2.68 (SD=0.77)	p=.611
Facebook			
Enjoyment of disclosing information	M=3.66 (SD=0.85)	M=3.41 (SD=0.71)	p=.000*

Note: \*=p≤0.05; 5-point Likert scale (1="strongly agree"; 5="strongly disagree")

The results show that Facebook users perceive clearly more Security risks than Social risks. This means that by disclosing personal information, people are more worried to be monitored or physically offended than being ashamed or risking the relationships with friends. The results also indicate that there is no significant difference between German and Dutch respondents regarding Perceived risks. Both groups perceive more Security risks and less Social risks. However, there are significant differences in Perceived benefits. Dutch respondents perceive significantly more Convenience of maintaining relationships, Selfpresentation and Enjoyment of disclosing information by using Facebook than the German respondents. The results also show a clear difference between the two enjoyment-benefits. Both German and Dutch respondents perceive clearly more Enjoyment by using Facebook than Enjoyment by disclosing information on Facebook. This indicates that people prefer to get information on Facebook, watch videos or look up latest news than actively disclosing personal information. Users enjoy the information given on Facebook, but are not willing to disclose and share information.

# 4.3.3. Willingness to disclose personal information

In this study, five types of Willingness to disclose personal information were analyzed. Willingness to disclose basic information (WD\_basic) describes basic information like user's names or date of birth given in the Facebook-profile. Willingness to disclose contact information (WD\_contact) describes the contact information like user's e-mail address. Additional information on user's profile like political views, family members or work experiences are described by WD\_additional. Disclosing personal information by actively posting information on Facebook like telling friends about holiday experiences for example are described by WD\_active. Willingness to disclose like-related information (WD\_like) describes disclosing information by like-generated features on Facebook. User's disclose personal information by liking a page, by joining certain groups or showing that they participate in a certain event. By doing one click (as the "like"-button), user's disclose personal information. The results of the descriptive statistics are shown in table 7.

	German	Dutch	Sig
	n=734	n=177	-
WD_basic	M=2.97 (SD=0.97)	M=2.32 (SD=0.81)	p=.000*
WD_contact	M=4.93 (SD=0.95)	M=4.73 (SD=1.08)	p=.026*
WD_additional	M=3.96 (SD=1.19)	M=3.22 (SD=0.93)	p=.000*
WD_active	M=3.83 (SD=1.05)	M=3.48 (SD=0.85)	p=.000*
WD_like	M=3.12 (SD=1.05)	M=2.87 (SD=0.83)	p=.006*

Table 7: Descriptive statistics for Willingness to disclose personal information

Note: \*=p≤0.05; 5-point Likert scale (1="very willing"; 5="very unwilling")

The results indicate that German respondents are significantly less willing to disclose personal information than Dutch – regardless which type of disclosing information. Also remarkable is that both German and Dutch respondents do not want to disclose contact information. The high mean value of Willingness to disclose contact information (WD\_contact) indicates that the respondents were very unwilling to disclose their address and e-mail address. This could be a consequence of the high perceived security risks. Facebook users seem to be careful in disclosing information like addresses that could threaten their (physical) security.

Overall, the importance of privacy seems to be very important for both nationalities, but especially for German respondents. German and Dutch Respondents are mainly concerned about security risks. They do not want to disclose their address or e-mail address, apparently due to perceived security risks as e.g. being stalked or robbed. The German and Dutch respondents do not differ regarding Perceived risks, but they significantly differ regarding all pre-existing factors (Peer pressure, Importance of Privacy and Privacy concerns) and also regarding Willingness to disclose personal information. It is noteworthy that all types of

Willingness to disclose personal information are significantly different between the two nationalities. This is an indication of the importance to analyze Willingness to disclose personal information in detail and in different sub constructs. Also remarkable is the difference between the two constructs of enjoyment. People prefer to enjoy using Facebook than disclosing personal information on Facebook. Enjoyment of disclosing personal information is newly developed in this study and shows significant differences between the nationalities. Both German and Dutch respondents state to not enjoy disclosing personal information. German respondents have a higher value than the Dutch, which indicates that they enjoy it less than the Dutch.

# 4.4. Testing the German research model

Based on the results of the Principal Component analysis, a more detailed model was developed (see figure 2). In this section, the influence of the constructs on each other and on Willingness to disclose personal information is described. The model was tested for the German and Dutch respondents separately.



Figure 2: Adapted research model

# 4.4.1 Testing the German model at an aggregated level

First, the German model was tested at an aggregated level by running regression analyses with the dimensions. Second, the influence of the different types of benefits and risks were analyzed by testing the German model on a detailed level. Third, the German model was tested on a detailed level to investigate the influence on each of the five types of Willingness to disclose personal information. Fourth, a mediation analyses was conducted to investigate

the mediating influence of Perceived risks and Perceived benefits on the relation between Privacy concerns and Willingness to disclose personal information.

# The influences on Willingness to disclose personal information (German respondents)

The first regression analyses was run to predict the influence of Perceived risks, Perceived benefits, Peer pressure and Privacy valuation on Willingness to disclose personal information. The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose personal information, F(4, 729)=132.315, p<0.000, R<sup>2</sup>=.421. The regression coefficients and standard errors are shown in table 8.

Table 8: Multiple regression analysis of Willingness to disclose personal information (German respondents)

Variable	В	SE B	β	Sig
Intercept	2.133	0.148		0.000*
Perceived risks	-0.079	0.034	-0.073	0.021*
Perceived benefits	0.583	0.037	0.520	0.000*
Privacy valuation	-0.191	0.033	-0.183	0.000*
Peer pressure	0.143	0.037	0.128	0.000*

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE<sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results of the first regression analysis at an aggregated level show that Peer pressure, Privacy valuation, Perceived risks and Perceived benefits explain 42% of the variance of Willingness to disclose personal information. Perceived risks and Privacy valuation have significant negative influence and Perceived benefits and Peer pressure a significant positive influence on the Willingness to disclose personal information. The high  $\beta$ -value of Perceived benefits indicates a strong influence on Willingness to disclose personal information. It shows that Perceived benefits of disclosing personal information is clearly more important for Facebook users than for example Perceived risks. If an individual has to take a decision to disclose a holiday picture for example, the perceived benefits weigh more than the perceived risks. If he/she perceives sufficient benefits, the probability is high that he/she discloses personal information.

The results also give answers to the following four hypotheses:

Hypothesis 1 is supported for Germans: Privacy valuation influences the Willingness to disclose personal information.

Hypothesis 4 is supported for Germans: Perceived risks negatively influence the Willingness to disclose personal information.

Hypothesis 5 is supported for Germans: Perceived benefits positively influence the Willingness to disclose personal information.

Hypothesis 6 is supported for Germans: Peer pressure influences the willingness to disclose personal information.

# The influences on Perceived benefits (German respondents)

The second regression analysis was run to predict the influence of Privacy valuation and Peer pressure on Perceived benefits. The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose personal information, F(2, 731)=133.471, p<0.000, R<sup>2</sup>=.267. The regression coefficients and standard errors are shown in table 9.

Variable	В	SE B	β	Sig
Intercept	1.811	0.120		0.000*
Peer pressure	0.502	0.032	0.503	0.000*
Privacy valuation	-0.128	0.030	-0.137	0.000*

Table 9: Multiple regression analysis of Perceived benefits (German respondents)

Note: \*= $p\leq0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that the dimensions Privacy valuation and Peer pressure explain 27% of the variance of Perceived benefits. Both dimensions significantly influence Perceived benefits; Peer pressure has a positive influence and Privacy valuation a negative influence. Remarkable is the high standardized coefficient ( $\beta$ =0.503) of Peer pressure on Perceived benefits. This indicates a strong positive influence of friends on the perceived benefits of a German Facebook user. If friends actively use Facebook and an individual observed this or has been asked by friends to disclose personal information in a certain way, the individual perceives more benefits of disclosing personal information. Thus, Peer pressure has a strong positive influence on Perceived benefits of disclosing personal information and may therefore influence the Willingness to disclose personal information in a positive way.

However, also privacy valuation has a significant influence on Perceived benefits. The valuation of privacy issues like the importance of privacy and privacy concerns negatively influence Perceived benefits. This indicates that German Facebook users are affected by privacy issues. They perceive less benefits of disclosing personal information when they have privacy issues in their minds. Privacy valuation may therefore negatively influence the Willingness to disclose personal information. German Facebook users emphasize privacy issues, which reduce the perceptions of benefits and may consequently reduce the willing to disclose personal information on Facebook.

The results also provide answers to the following two hypotheses:

Hypothesis 3 is supported for Germans: Privacy valuation influences Perceived benefits. Hypothesis 8 is supported for Germans: Peer pressure influences perceived benefits.

# The influences of Perceived risks (German respondents)

The third regression analysis was run to predict the influence of Privacy valuation and Peer pressure on Perceived risks. The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose personal information, F(2, 731)=93.455, p<0.000,  $R^2$ =.204. The regression coefficients and standard errors are shown in table 10.

Table 10: Multiple regression analysis of Perceived risks (German respondents)

Variable	В	SE B	β	Sig
Intercept	1.677	0.130		0.000*
Peer pressure	0.128	0.034	0.124	0.000*
Privacy valuation	0.416	0.032	0.430	0.000*

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Peer pressure and Privacy valuation explain 20% of the variance of Perceived risks. Both have a significant positive influence of Perceived risks. Privacy valuation has a strong influence ( $\beta$ =0.430) on Perceived risks. This means, the more German Facebook users emphasize their privacy or have privacy concerns, the more they perceive risks in disclosing personal information on Facebook. German Facebook users are sensitive regarding their privacy and are strongly concerned about it. Due to the high valuation of privacy, they may be more aware of privacy frauds. They may know what exactly could happen (e.g. stolen identities) when they disclose personal information and are consequently more aware of possible risks than Facebook users who do not think about their privacy. Thus, the more Facebook users emphasize their privacy, the more they think about possible privacy risks and perceive more risks of disclosing personal information on Facebook.

However, also Peer pressure has a positive influence on Perceived risks. Friends, who state that disclosing personal information is dangerous or who tell about their experiences with privacy frauds, affect an individual's perception of risks of disclosing personal information on Facebook. The individual may be more aware of risks due to the experiences or information of their friends. Peer pressure positively influences the perception of risks and may consequently influence the Willingness to disclose personal information in a negative way. When an individual is influenced by his/her peers and perceive more risks of disclosing personal information, he/she may be less willing to disclose personal information.

The results also provide answers to two hypotheses:

Hypothesis 2 is supported for Germans: Privacy valuation influences Perceived risks. Hypothesis 7 is supported for Germans: Peer pressure influences Perceived risks.

Considering the results of all three regression analyses, it is remarkable that Peer pressure positively influences Perceived risks and Perceived benefits. These results indicate that Peer pressure is twofold. On the one hand, it can be negative regarding the Willingness to disclose personal information by supporting the Perceived risks and on the other hand it strengthens the Perceived benefits and therefore may has a positive influence on the Willingness to disclose personal information. Peer pressure is thus an important variable to analyze in this context. Also the strong influence of Perceived benefits on the Willingness to disclose personal information is noteworthy. Perceived benefits are the most important factor for German Facebook users when they decide to disclose personal information. Perceived benefits are again strongly influenced by Peer pressure. Facebook friends and perceived benefits are thus very important for German individuals to decide whether to disclose personal information on Facebook. However, also privacy valuation is important to consider when Facebook users decide whether to disclose personal information or not. Privacy valuation influences Perceived benefits, Perceived risks and also Willingness to disclose personal information. German Facebook users, who strongly emphasize their privacy, perceive more risks of disclosing information and are less willing to disclose personal information. The results of the first three regression analyses are shown in figure 3.



Figure 3: Research model with  $\beta$ -values of the first regression analyses (German respondents)

# 4.4.2 Testing the German model on a detailed level of Perceived risks and Perceived benefits

In order to investigate whether the different types of risks and benefits influence the Willingness to disclose personal information, a multiple regression analysis with Security risks, Social risks, Enjoyment of disclosing information (ENofDIS), Enjoyment of using Facebook (ENofFB), Self-presentation (SP), Relationship building (RB) and Convenience of maintain relationships (CON) was conducted. The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose personal information, F(7, 725)=76.546, p<0.000, R<sup>2</sup>=.425. The regression coefficients and standard errors are shown in table 11.

(German respondents)				
Variable	В	SE B	β	Sig
Intercept	1.903	0.141		0.000*
Social risks	-0.055	0.026	-0.063	0.033*
Security risks	-0.081	0.023	-0.101	0.001*
Enjoyment of disclosing information (ENofDIS)	0.366	0.032	0.427	0.000*
Enjoyment of using Facebook (ENofFB)	0.090	0.031	0.094	0.004*
Convenience of maintaining relationships (CON)	0.068	0.027	0.089	0.011*
Self-presentation (SP)	0.102	0.025	0.132	0.000*
Relationship building (RB)	0.047	0.025	0.064	0.062

Table 11: Multiple regression analysis of Willingness to disclose personal information (German respondents)

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient
The results in table 11 show that all types of risks and all types of benefits except Relationship building significantly influence the Willingness to disclose personal information. The variables explain 43% of the variance of the Willingness to disclose personal information. Enjoyment of disclosing personal information has the strongest influence; this means that German Facebook users decide to disclose personal information primarily on the basis of the enjoyment of disclosing information, followed by the benefit of Self-presentation. Both types of risks negatively influence the Willingness to disclose personal information. Security risk has a stronger influence than Social risks. Consequently, Facebook users are mainly negatively affected by Security risks and positively affected by the Enjoyment of disclosing personal information in the decision to disclose personal information. The results of the regression analysis on a detailed level of Perceived risks and Perceived benefits are shown in figure 4. The grey arrows show relationships which are not measured in this analysis, the black arrows show significant relationships and the grey dotted arrows describe insignificant relationships measured in the current analysis. These arrow-descriptions are valid for all figures in this study.

The results also provide answers to the following hypotheses:

Hypothesis 4a is supported: Security risks negatively influence the willingness to disclose personal information.

Hypothesis 4b is supported: Social risks negatively influence the willingness to disclose personal information.

Hypothesis 5a is supported: Perceived convenience of maintaining existing relationships positively influences the willingness to disclose personal information.

Hypothesis 5b is not supported. The opportunity of building new relationships has no significant influence on the willingness to disclose personal information.

Hypothesis 5c is supported: Perceived benefits of self-presentation positively influence the willingness to disclose personal information.

Hypothesis 5d is supported: Perceived enjoyment of disclosing personal information on Facebook positively influences the willingness to disclose personal information.

Hypothesis 5e is supported: Perceived enjoyment of using Facebook positively influences the willingness to disclose personal information.



Figure 4: Research model with  $\beta$ -values of each type of risks and benefits (German respondents)

## 4.4.3. Testing the German model on a detailed level with five sub constructs of Willingness to disclose personal information

Due to the high proportion of variance of Willingness to disclose personal information that can be explained by Peer pressure, Perceived benefits, Perceived risks and Privacy valuation (R<sup>2</sup>=0.42), five different multiple regressions were run to investigate the influence on each of the five constructs on Willingness to disclose personal information. The first type, Willingness to disclose additional information (WD\_additional), describes information given on user's profile like political views, family members or work experiences. The second, disclosing personal information by actively posting information on Facebook like telling friends about holiday experiences for example are described by WD active. The third type, Willingness to disclose basic information (WD\_basic), describes basic information like user's names or date of birth given in the Facebook-profile. The fourth type, Willingness to disclose like-related information (WD like), describes disclosing information by like-generated features on Facebook. User's disclose personal information by liking a page, by joining certain groups or showing that they participate in a certain event. By doing one click (as the "like"-button), user's disclose personal information. The last type, Willingness to disclose contact information (WD\_contact), describes the contact information like user's e-mail address.

#### Willingness to disclose additional information (German respondents)

The first regression analyses was run to predict the influence of Perceived risks, Perceived benefits, Peer pressure and Privacy valuation on Willingness to disclose additional information (WD\_additional). The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict willingness to disclose additional information, F(4, 729)=41.821, p<0.000,  $R^2=.187$ . The regression coefficients and standard errors are shown in table 12.

Table 12: Multiple regression analysis of Willingness to disclose additional information (German respondents)

Variable	В	SE B	β	Sig
Intercept	2.183	0.285		0.000*
Peer pressure	0.201	0.071	0.110	0.005*
Perceived risks	0.034	0.066	0.019	0.607
Perceived benefits	0.557	0.071	0.305	0.000*
Privacy valuation	-0.325	0.064	-0.191	0.000*

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Peer pressure, Perceived benefits and Privacy valuation significantly influence the Willingness to disclose additional information. The variables explain 19% of the variance of Willingness to disclose additional information. Perceived risks have no significant influence. The dimensions Privacy valuation negatively influences and Peer pressure and Perceived benefits positively influence Willingness to disclose additional information. As in the results of the regression analyses at an aggregated level (see figure 3), Perceived benefits have the strongest influence on the Willingness to disclose additional information. This means that German Facebook users are mainly affected by perceived benefits when they decide to disclose additional information on Facebook.

## Willingness to disclose personal information by actively posting information (German respondents)

The second regression analysis was run to predict the influence of Perceived risks, Perceived benefits, Peer pressure and Privacy on Willingness to disclose personal information by actively posting information (WD\_active). The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose information by actively posting information, F(4, 729)=147.340, p<0.000, R<sup>2</sup>=.447. The regression coefficients and standard errors are shown in table 13.

Variable	В	SE B	β	Sig
Intercept	0.889	0.208		0.000*
Peer pressure	0.235	0.052	0.146	0.000*
Perceived risks	-0.164	0.048	-0.105	0.001*
Perceived benefits	0.917	0.052	0.568	0.000*
Privacy valuation	-0.092	0.047	-0.061	0.050*

Table 13: Multiple regression analysis of Willingness to disclose personal information by actively posting information (German respondents)

Note:  $*=p \le 0.05$ ; B=unstandardized regression coefficient; SE<sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that all variables significantly influence the Willingness to disclose personal information by actively posting information. They explain 45% of the variance of WD\_active. Perceived risks and Privacy have a negative influence, whereas Peer pressure and Perceived benefits have a positive influence. As in the results of the regression analyses at an aggregated level and Willingness to disclose additional information, Perceived benefits also influence WD\_active the strongest. The decision of German Facebook users to disclose personal information by actively posting information is mainly influenced by perceived benefits of disclosing personal information.

#### Willingness to disclose basic personal information (German respondents)

The third of the five regression analyses was run to predict the influence of Perceived risks, Perceived benefits, Peer pressure and Privacy valuation on Willingness to disclose basic personal information (WD\_basic). The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose basic personal information, F(4, 729)=33.136, p<0.000,  $R^2=.154$ . The regression coefficients and standard errors are shown in table 14.

(Ociman respondents)				
Variable	В	SE B	β	Sig
Intercept	2.844	0.236		0.000*
Peer pressure	0.038	0.059	0.025	0.522
Perceived risks	-0.187	0.055	-0.131	0.001*
Perceived benefits	0.369	0.059	0.249	0.000*
Privacy valuation	-0.267	0.053	-0.194	0.000*

Table 14: Multiple regression analysis of Willingness to disclose basic personal information (German respondents)

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Perceived risks, Perceived benefits and Privacy valuation significantly influence the Willingness to disclose basic personal information. They explain 15% of the variance of WD\_basic. Peer pressure has no significant influence. Privacy valuation and Perceived risks negatively influence and Perceived benefits positively influence Willingness to disclose basic personal information. As in the previous regression analyses, Perceived benefits is the strongest influencer of Willingness to disclose basic personal information.

#### Willingness to disclose like-related information (German respondents)

The fourth regression analysis was run to predict the influence of Perceived risks, Perceived benefits, Peer pressure and Privacy valuation on Willingness to disclose like-related information (WD\_like). The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose like-related information, F(4, 728)=78.399, p<0.000, R<sup>2</sup>=.301. The regression coefficients and standard errors are shown in table 15.

Table 15: Multiple regression analysis of Willingness to disclose like-related personal information (German respondents)

Variable	В	SE B	β	Sig
Intercept	0.783	0.236		0.000*
Peer pressure	0.101	0.058	0.063	0.081
Perceived risks	-0.145	0.054	-0.093	0.007*
Perceived benefits	0.812	0.058	0.504	0.000*
Privacy valuation	-0.045	0.053	-0.030	0.391

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that only Perceived risks and Perceived benefits significantly influence the Willingness to disclose like-related personal information. However, the variables still explain 30% of the variance of WD\_like. Privacy valuation and Peer pressure have no significant influence. Perceived benefits positively influence and Perceived risks negatively influence the Willingness to disclose like-related personal information. As in the previous regression analyses, Perceived benefits has the strongest influence on WD\_like. German Facebook users are mainly affected by perceived benefits of disclosing personal information when they decide whether to disclose like-related personal information by liking a certain page for example.

#### Willingness to disclose contact information (German respondents)

The last regression analysis was run to predict the influence of Perceived risks, Perceived benefits, Peer pressure and Privacy valuation on Willingness to disclose contact information (WD\_contact). The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose contact information, F(4, 728)=17.506, p<0.000, R<sup>2</sup>=.088. The regression coefficients and standard errors are shown in table 16.

Table 16: Multiple regression analysis of Willingness to disclose contact information (German respondents)

Variable	В	SЕв	β	Sig
Intercept	4.088	0.246		0.000*
Peer pressure	0.135	0.060	0.092	0.025*
Perceived risks	0.061	0.056	0.043	0.275
Perceived benefits	0.245	0.061	0.167	0.000*
Privacy valuation	-0.247	0.055	-0.179	0.000*

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE<sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Peer pressure, Perceived benefits and Privacy valuation significantly influence the Willingness to disclose contact information. Perceived risks have no significant influence on WD\_contact. The variables explain 9% of the variance of WD\_contact. Privacy valuation has a negative influence and Peer pressure and Perceive benefits a positive influence. Surprisingly, Perceived benefits have not the strongest influence on the Willingness to disclose contact information. Here, Privacy valuation is the strongest influence on WD\_contact. This strongly differs to the other four types of Willingness to disclose personal information. Privacy valuation is the strongest influence negatively. This could be an explanation for the high mean value of Willingness to disclose contact information for the high mean value of Willingness to disclose that Facebook users do not want to disclose their contact information. The results of the regression analysis show that WD\_contact is strongly negatively influenced by Privacy valuation. Thus, due to privacy issues, German Facebook users do not want to disclose contact information.

To summarize, all five types of Willingness to disclose are significantly influenced by two or more tested variables. Willingness to disclose personal information by actively posting information is significantly influenced by all variables. Perceived benefits significantly influence all of the five dependent variables. If the influence of Perceived risks and Privacy valuation is significant, it is negative. It is remarkable that all five types of Willingness to disclose personal information are influenced by different variables. For German Facebook users it depends on the type of disclosing information what factor influences the decision to disclose information. Figure 5 shows which type of Willingness to disclose personal information is influenced by which variables.







#### 4.4.4. Mediation analyses (German respondents)

The goal of this study is to give an explanation for the privacy paradox. The privacy paradox describes an unexpected behavior by people who are concerned about their privacy, but nevertheless disclose personal information on Facebook. To analyze this privacy paradox, the relationship between Privacy concerns and Willingness to disclose personal information was measured in more detail. It was tested by two separate mediation analyses whether the relation between Privacy concerns and Willingness to disclose personal information is mediated by Perceived risks and Perceived benefits. One mediation analysis was conducted to measure the mediating influence of Perceived risks (at an aggregated level) and another mediation analysis was conducted to measure the mediating influence of Perceived benefits

(at an aggregated level). Both mediation analyses were conducted in four steps, following the instructions of Baron and Kenny (1986).

#### Mediation analyses with Perceived risks (German respondents)

First, the influence of Privacy concerns on Willingness to disclose was analyzed, F(1, 732)=25.149, p<0.000, R<sup>2</sup>=.033. Second, the influence of Privacy concerns on Perceived risks was analyzed, F(1, 732)=209.839, p<0.000, R<sup>2</sup>=.223. Third, the influence of Perceived risks on Willingness to disclose was analyzed, F(1, 732)=10.240, p<0.001, R<sup>2</sup>=.014. Due to the significance of all the three relationships, a mediating influence of Perceived risks was assumed. After conducting three simple regressions to investigate the single influence of two variables, the last step was conducting a multiple regression analyses with Perceived risks and Privacy concerns predicting Willingness to disclose personal information, F(2, 731)=13.055, p<0.000, R<sup>2</sup>=.034.

The regression coefficients and the significance are described in table 17. The influences of the variables before and with the mediating variable Perceived risks are shown in figure 6.

Step	Variable	В	SЕв	β	Sig
1	Intercept (Willingness to disclose personal info)	4.143	0.080		0.000*
	Privacy concerns	-0.150	0.030	-0.182	0.000*
2	Intercept (Risks)	2.085	0.067		0.000*
	Privacy concerns	0.359	0.025	0.472	0.000*
3	Intercept (Willingness to disclose personal info)	4.143	0.122		0.000*
	Perceived risks	-0.127	0.040	-0.117	0.001*
4	Intercept (Willingness to disclose personal info)	4.234	0.123		0.000*
	Perceived risks	-0.044	0.044	-0.040	0.327
	Privacy concerns	-0.134	0.034	-0.163	0.000*

Table 17: Mediation analyses of Perceived risks (German respondents)

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient



#### Figure 6: Mediation analyses of Perceived risks (German respondents)

The results of the multiple regression analysis show that the influence of Privacy concerns on Willingness to disclose remains significant when the dimension Perceived risks is controlled. Therefore a partial mediating effect of Perceived risks on the relationship between Privacy concerns and Willingness to disclose is supported. When Perceived risks is controlled, the influence of Privacy concerns on the Willingness to disclose personal information is less ( $\beta$ =-0.163) than without controlling Perceived risks ( $\beta$ =-0.182). This is a possible explanation for the privacy paradox. When German Facebook users perceive risks, the perceived privacy concerns have less influence on the Willingness to disclose personal information.

The results also provide answers to the following two hypotheses:

Hypothesis 1a is supported for Germans: Privacy concerns influence the Willingness to disclose personal information.

Hypothesis 2a is supported for Germans: Privacy concerns influence Perceived risks.

#### Mediation analyses with Perceived benefits (German respondents)

In order to investigate the mediating influence of Perceived benefits on the relationship of Privacy concerns and Willingness to disclose personal information, a second mediation analyses was conducted in the same way as the first mediation analysis.

First, the influence of Privacy concerns on Willingness to disclose was analyzed, F(1, 732)=25.149, p<0.000, R<sup>2</sup>=.033. Second, the influence of Privacy concerns on Perceived benefits was analyzed, F(1, 732)=3.683, p<0.055, R<sup>2</sup>=.005. Third, the influence of Perceived benefits on Willingness to disclose was analyzed, F(1, 732)=420.281, p<0.000, R<sup>2</sup>=.365. Due to the insignificant influence of Privacy concerns on Perceived benefits, a mediating effect was not assumed and therefore no further analyses were taken.

The regression coefficients and the significance are described in table 18. The influences of the variables before and with the mediating variable Perceived risks are shown in figure 7.

Step	Variable	В	SЕв	β	Sig
1	Intercept (Willingness to disclose personal info)	4.143	0.080		0.000*
	Privacy concerns	-0.150	0.030	-0.182	0.000*
2	Intercept (Benefits)	3.268	0.073		0.000*
	Privacy concerns	-0.052	0.027	-0.071	0.055
3	Intercept (Willingness to disclose personal info)	1.642	0.106		0.000*
	Perceived benefits	0.676	0.033	0.604	0.000*

Table 18: Mediation analyses of Perceived benefits (German respondents)

Note:  $*=p\leq0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient



#### Figure 7: Mediation analyses of Perceived benefits (German respondents)

The results of the mediation analysis with Perceived benefits reveal that Perceived benefits have no mediating effects on the relationship between Privacy concerns and Willingness to disclose personal information. The results nevertheless provide an answer to hypothesis 3a:

Hypothesis 3a is not supported for Germans: Privacy concerns have no influence on Perceived benefits.

Considering the results of the whole analyses of the German model, it is clear that German respondents strongly emphasize their privacy and consequently are concerned about their privacy. They perceive more security risks than social risks when disclosing personal information on Facebook. German Facebook users are not willing to provide their contact information like address or e-mail address, apparently due to security risks. They prefer using Facebook by reading information than sharing information. Although German Facebook users rather enjoy using Facebook than disclosing personal information on Facebook, the Enjoyment of disclosing personal information on Facebook is the strongest influencer on the Willingness to disclose personal information. The other types of benefits also influence the Willingness to disclose personal information (except Relationship building), but Enjoyment of disclosing personal information has the strongest influence. Also the results of the analyses of all types of Willingness to disclose personal information show that benefits are the most important factor of almost all disclosure types. Only disclosing contact information is influenced the strongest by privacy issues. The strong negative influence of privacy and the strong negative influence of security risks explain the refusal of disclosing contact information.

All five types of Willingness to disclose personal information are influenced by different variables, this means that the influence depends on the type of disclosure. When German Facebook users decide to disclose additional personal information like the working experience, they are influenced by privacy valuation, perceived benefits and peer pressure. But when German Facebook users decide to disclose basic personal information like their name or date of birth, they are influenced by privacy valuation, perceived risks, perceived benefits, but not by peer pressure. These results show that it is important to analyze the types of Willingness to disclose personal information in more detail.

The results also show that Peer pressure can be positive as well as negative regarding the Willingness to disclose personal information. Peer pressure positively influences perceived benefits and perceived risks, thus it depends on the type of peer pressure. When friends ask individuals to like a page, they support the Willingness to disclose. But when friends are concerned about privacy and suggest adapting the privacy settings, it hinders the Willingness to disclose personal information.

The mediation analysis reveals that Perceived risks mediate the relationship of Privacy concerns and the Willingness to disclose personal information. When Facebook users perceive both Privacy concerns and Perceived risks, the influence of Privacy concerns on Willingness to disclose personal information is less than when they only perceived Privacy concerns. Due to the additional variable Perceived risks, the influence of Privacy concerns is reduced. The relationship between Privacy concerns and the Willingness to disclose personal information perceived risks.

### 4.5. Testing the Dutch research model

After testing the German model, the Dutch model was tested in the same way as the German model (see figure 2 in 4.4.).

#### 4.5.1. Testing the Dutch model at an aggregated level

First, the Dutch model was tested at an aggregated level by running regression analyses with the dimensions. Second, the influence of the different types of benefits and risks were analyzed by running regression analyses on a detailed level. Third, the Dutch model was

tested on a detailed level to investigate the influence on each of the five types of Willingness to disclose personal information. Fourth, a mediation analyses was conducted to investigate the mediating influence of Perceived risks and Perceived benefits on the relation between Privacy concerns and Willingness to disclose personal information.

#### The influences on Willingness to disclose personal information (Dutch respondents)

The first regression analysis was run to predict the influence of Perceived risks, Perceived benefits, Peer pressure and Privacy valuation on Willingness to disclose personal information. The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The variables significantly predict Willingness to disclose personal information, F(4, 172)=43,248, p<0.000. R<sup>2</sup>=.501. The regression coefficients and standard errors are shown in table 19.

Table 19: Multiple regression analysis of Willingness to disclose personal information (Dutch respondents)

Variable	В	SE B	β	Sig
Intercept	2.618	0.273		0.000*
Peer pressure	0.066	0.067	0.060	0.329
Perceived risks	0.014	0.061	0.014	0.814
Perceived benefits	0.482	0.063	0.464	0.000*
Privacy valuation	-0.413	0.055	-0.437	0.000*

Note: \*= $p\leq0.05$ ; B=unstandardized regression coefficient; SE<sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Perceived benefits positively influence and Privacy valuation negatively influence the Willingness to disclose personal information. Peer pressure and Perceived risks have no significant influence. Both Perceive benefits and Privacy valuation have a strong influence and explain 50% of the variance of Willingness to disclose personal information. Thus, Dutch Facebook users are mainly affected by privacy issues and perceived benefits when they decide to disclose personal information on Facebook. These results strongly differ to German Facebook users, who are influenced by Peer pressure, Perceived risks, Perceived benefits and Privacy valuation.

The results also provide answers to the following hypotheses:

Hypothesis 1 is supported for Dutch respondents: Privacy valuation influences the Willingness to disclose personal information.

Hypothesis 4 is not supported for Dutch respondents: Perceived risks have no influence on Willingness to disclose personal information.

Hypothesis 5 is supported for Dutch respondents: Perceived benefits positively influence the Willingness to disclose personal information.'

Hypothesis 6 is not supported for Dutch respondents: Peer pressure has no influence on the Willingness to disclose personal information.

#### The influences on Perceived benefits (Dutch respondents)

The second regression analysis was run to predict the influence of Peer pressure and Privacy valuation on Perceived benefits. The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals were met. The

variables significantly predict Perceived benefits, F(2, 174)=23,156, p<0.000.  $R^2=.210$ . The regression coefficients and standard errors are shown in table 20.

Variable	В	SE B	β	Sig
Intercept	2.154	0.256		0.000*
Peer pressure	0.448	0.072	0.420	0.000*
Privacy valuation	-0.208	0.062	-0.228	0.001*

Table 20: Multiple regression analysis of Perceived benefits (Dutch respondents)

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Peer pressure and Privacy valuation explain 21% of the variance of Perceived benefits. Both dimensions significantly influence Perceived benefits; Peer pressure positively and Privacy valuation negatively. Peer pressure has a stronger influence than Privacy valuation. The high standardized coefficient ( $\beta$ =0.420) indicate a strong positive effect of Peer pressure on Perceived benefits. These means, when friends often disclose personal information on Facebook or suggest disclosing information in a certain way, it affects an individual's perception of benefits regarding disclosing personal information on Facebook. When an individual perceives more benefits due to the behavior of peers, he/she may be more willing to disclose personal information. This means, that Peer pressure has a strong influence on Perceived benefits of Dutch Facebook users and may also reinforce the Willingness to disclose personal information on Facebook.

However, also privacy valuation significantly influence Perceived benefits. The more Dutch Facebook users emphasize their privacy or have privacy concerns, the less they perceive benefits of disclosing personal information. When they think about privacy issues, they may have negative experiences or heard about negative experiences with disclosing personal information like for example stolen identities. These experiences and their awareness about privacy frauds may be the reason why the dimension privacy valuation reduces the perception of benefits in this context. When Dutch Facebook users strongly valuate their privacy, they perceive less benefits of disclosing personal information. This may have negative consequences on the Willingness to disclose personal information.

The results provide answers to the following two hypotheses:

Hypothesis 3 is supported for Dutch respondents: Privacy valuation influences Perceived benefits.

Hypothesis 8 is supported for Dutch respondents: Peer pressure influences Perceived benefits.

#### The influences on Perceived risks (Dutch respondents)

The third regression analysis was run to predict the influence of Peer pressure and Privacy valuation on Perceived risks. The assumptions of independence of errors, linearity, homoscedasticity, unusual points and normality of residuals are met. The variables significantly predict Perceived risks, F(2, 174)=12,416, p<0.000.  $R^2=.125$ . The regression coefficients and standard errors are shown in table 21.

Variable	B	SE B	β	Sig
Intercept	1.844	0.256		0.000*
Peer pressure	0.234	0.074	0.224	0.002*
Privacy valuation	0.225	0.064	0.253	0.001*

Table 21: Multiple regression analysis of Perceived risks (Dutch respondents)

Note: \*= $p\leq0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Peer pressure and Privacy valuation explain 13% of the variance of Perceived risks, this is 8% less than the variance of Perceived benefits. It indicates that Peer pressure and Privacy valuation have more influence on Perceived benefits than on Perceived risks. However, Peer pressure and Privacy valuation positively influences Perceived risks significantly. When friends tell about negative experiences with disclosing personal information, they affect an individual's perception of risks. By having negative experiences in mind, Dutch Facebook users perceive more risks of disclosing personal information. Consequently, Peer pressure reinforces perceived risks and may therefore negatively affect the Willingness to disclose personal information on Facebook.

Also Privacy valuation strengthens the perception of risks. Dutch Facebook users have privacy concerns and value their privacy as very important. They think about privacy protection, possible privacy frauds and the possible risks of self-disclosure. These negative privacy experiences reinforce the perceived risks of disclosing personal information. Dutch Facebook users, who are strongly concerned about their privacy, may know exactly what could happen when they disclose personal information (e.g. stolen identity) and therefore perceive more risks. This may have negative consequences on the willingness to disclose personal information on Facebook.

The results also provide answers to the following two hypotheses:

Hypothesis 2 is supported for Dutch respondents: Privacy valuation influences Perceived risks.

Hypothesis 7 is supported for Dutch respondents: Peer pressure influences Perceived risks.

To summarize, the Dutch model strongly differs to the German model regarding the influence of the dimensions on Willingness to disclose personal information. Dutch Facebook users are only influenced by Perceived benefits and Privacy valuation, whereas German Facebook users are influenced by all four dimensions (Perceived benefits, Perceived risks, Privacy valuation and Peer pressure). This means that German Facebook users also consider possible risks and peer pressure when they decide whether to disclose personal information on Facebook whereas Dutch Facebook users are mainly influenced by perceived benefits and privacy valuation and are not affected by the influence of peers or perceived risks of disclosing information.

However, there are similarities between both nationalities regarding the influence of the preexisting factors on the situational factors. Perceived benefits and Perceived risks are both influenced by Peer pressure and Privacy valuation in the Dutch and the German model. As in the German model (see figure 3), Peer pressure positively influences Perceived risks and Perceived benefits in the Dutch model (see figure 8). That again indicates that Peer pressure is twofold and affects Willingness to disclose positively as well as negatively via risks and benefits for both nationalities. Privacy valuation affects Perceived risks positively and Perceived benefits negatively in the German and the Dutch model.

Remarkable is the high explained variance of 50% of the Willingness to disclose personal information by only two variables (Privacy valuation and Perceived benefits) in the Dutch model. Privacy valuation and Perceived benefits strongly influence the Willingness to disclose personal information of Dutch Facebook users. These two variables seem to be two of the most important factors for Dutch Facebook users when they decide to disclose personal information. The results of the regression analyses to analyze the Dutch model at an aggregated level are shown in figure 8.



Figure 8: Research model with  $\beta$ -values of the first regression analyses (Dutch respondents)

## 4.5.2. Testing the Dutch model on a detailed level of Perceived risks and Perceived benefits

The dimension of Perceived risks combines two types of risks: Security and Social risks. The dimension of Perceived benefits combines five types of benefits: Convenience of maintaining relationships (CON), Relationship building (RB), Self-presentation (SP), Enjoyment of disclosing personal information of Facebook (ENofDIS) and Enjoyment of using Facebook (ENofFB). A multiple regression analysis was conducted to investigate the influence of each type of risks and benefits on the Willingness to disclose personal information. All assumptions were met and the variables statistically significantly predict Willingness to disclose personal information, F(7,169)=15,227, p<0.000. R<sup>2</sup>=.387. The regression coefficients and standard errors are shown in table 22.

Variable	В	SE B	β	Sig
Intercept	1.694	0.281		0.000*
Social risks	-0.052	0.057	-0.058	0.358
Security risks	-0.036	0.048	-0.047	0.457
Enjoyment of disclosing personal information	0.308	0.067	0.361	0.000*
Enjoyment of using Facebook	0.137	0.055	0.172	0.015*
Convenience of maintaining relationships	0.096	0.052	0.137	0.067
Self-presentation	0.096	0.049	0.139	0.053
Relationship building	-0.009	0.047	-0.013	0.854

Table 22: Multiple regression analysis of Willingness to disclose personal information (Dutch
respondents)

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that only two types of Perceived benefits (Enjoyment of disclosing personal information on Facebook and Enjoyment of using Facebook) significantly predict the Willingness to disclose personal information. Nevertheless, both variables explain 39% of the variance of the Willingness to disclose personal information. This high amount of explained variance is surprising since only two sub constructs significantly influence the Willingness to disclose. Both variables thus have a very strong positive influence. These results differ from the results of the German respondents. While in the Dutch group only the two Enjoymentbenefits significantly influence, in the German groups all types of risks and all types of benefits except Relationship building significantly influence the Willingness to disclose personal information. These results are similar to the results of the first regression analyses of the Dutch model at an aggregated level. Perceived risks have no influence and Perceived benefits a strong positive influence on Willingness to disclose personal information. After conducting a regression analysis on a detailed level, we now know that especially Enjoyment of using Facebook and Enjoyment of disclosing personal information as Perceived benefits influence Willingness to disclose personal information. Dutch Facebook users are therefore mainly influenced by enjoyment and decide on the basis of the pleasure of using Facebook and the enjoyment of disclosing personal information whether they want to disclose personal information. The results of the analysis on a detailed level are shown in figure 9 and they also provide answers to the following hypotheses:

Hypothesis 4a is not supported: Security risks have no influence on the Willingness to disclose personal information

Hypothesis 4b is not supported: Social risks have no influence Willingness to disclose personal information.

Hypothesis 5a is not supported: Perceived convenience of maintaining existing relationships has no influence the Willingness to disclose personal information.

Hypothesis 5b is not supported. The opportunity of building new relationships has no significant influence on the Willingness to disclose personal information.

Hypothesis 5c is not supported: Perceived benefits of self-presentation have no influence the Willingness to disclose personal information.

Hypothesis 5d is supported: Perceived enjoyment of disclosing personal information on Facebook positively influences the Willingness to disclose personal information.

Hypothesis 5e is supported: Perceived enjoyment of using Facebook positively influences the Willingness to disclose personal information.



Figure 9: Research model with  $\beta$ -values of each type of risks and benefits (Dutch respondents)

# 4.5.3. Testing the Dutch model on a detailed level with five sub constructs of willingness to disclose personal information

The variables Perceived benefits, Perceived risks, Privacy valuation and Peer pressure explain 50% of the variance of the Willingness to disclose personal information. The dimension Willingness to disclose personal information has five sub constructs; Willingness to disclose additional information (WD\_additional), Willingness to disclose personal information by actively posting information (WD\_active), Willingness to disclose basic personal information (WD\_basic), Willingness to disclose like-related information (WD\_like) and Willingness to disclose contact information (WD\_contact). Due to the high proportion of the explained variance, the five types of disclosing personal information were analyzed separately.

#### Willingness to disclose additional information (Dutch respondents)

A regression analyses was conducted to predict the influence of Perceived benefits, Perceived risks, Privacy valuation and Peer pressure on the Willingness to disclose additional information (WD\_additional). The variables significantly predict the Willingness to disclose additional information, F(4,172)=14,442, p<0.000, R<sup>2</sup>=.251. The regression coefficients and standard errors are shown in table 23.

Variable	В	SЕв	β	Sig
Intercept	2.654	0.512		0.000*
Peer pressure	0.133	0.126	0.079	0.293
Perceived risks	0.000	0.115	0.000	0.997
Perceived benefits	0.448	0.118	0.282	0.000*
Privacy valuation	-0.494	0.103	-0.342	0.000*

Table 23: Multiple regression analysis of Willingness to disclose additional information (Dutch respondents)

Note:  $*=p\leq0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that only Perceived benefits and Privacy valuation significantly influence the Willingness to disclose additional information. The variables explain 25% of the variance of WD\_additional. The results are similar to the results from the multiple regression analyses at an aggregated level (see table 19). Privacy valuation has a negative and Perceived benefits a positive influence on the Willingness to disclose additional information.

# Willingness to disclose personal information by actively posting information (Dutch respondents)

A regression analysis was conducted to predict the influence of Perceived benefits, Perceived risks, Privacy valuation and Peer pressure on the Willingness to disclose personal information by actively posting information (WD\_active). The variables statistically significantly predict the Willingness to disclose personal information by actively posting information, F(4,172)=37,694, p<0.000, R<sup>2</sup>=.467. The regression coefficients and standard errors are shown in table 24.

Variable	В	SE B	β	Sig
Intercept	1.434	0.393		0.000*
Peer pressure	0.188	0.097	0.122	0.054
Perceived risks	-0.170	0.088	-0.116	0.054
Perceived benefits	0.835	0.091	0.578	0.000*
Privacy valuation	-0.216	0.079	-0.164	0.007*

Table 24: Multiple regression analysis of Willingness to disclose personal information by actively posting information (Dutch respondents)

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE<sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that only Perceived benefits and Privacy valuation significantly influence the Willingness to disclose personal information by actively posting information. The variables explain 47% of the variance of WD\_active. The results are similar to the results of the regression analyses at an aggregated level (see table 19) and on Willingness to disclose additional information (see table 23). Perceived benefits have a strong influence on WD\_active, this indicates that Dutch Facebook users are more affected by perceived benefits than privacy issues when they decide to disclose personal information by actively posting information.

#### Willingness to disclose basic personal information (Dutch respondents)

A regression analyses was conducted to predict the influence of Perceived benefits, Perceived risks, Privacy valuation and Peer pressure on the Willingness to disclose basic personal information (WD\_basic). The variables significantly predict the Willingness to disclose basic personal information, F(4,172)=14,178, p<0.000, R<sup>2</sup>=.248. The regression coefficients and standard errors are shown in table 25.

Table 25: Multiple regression analysis of willingness to disclose basic personal information (Dutch respondents)

Variable	В	SE B	β	Sig
Intercept	2.364	0.448		0.000*
Peer pressure	0.010	0.111	0.007	0.929
Perceived risks	-0.028	0.100	-0.020	0.781
Perceived benefits	0.375	0.103	0.270	0.000*
Privacy valuation	-0.462	0.090	-0.365	0.000*

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient

Also the results of the regression analysis of Willingness to disclose basic personal information show that only Perceived benefits and Privacy valuation have significant influence. The two variables still explain 25% of the variance of the Willingness to disclose basic personal information.

#### Willingness to disclose like-related information (Dutch respondents)

A regression analysis was conducted to predict the influence of Perceived benefits, Perceived risks, Privacy valuation and Peer pressure on the Willingness to disclose likerelated information (WD\_like). The variables significantly predict the Willingness to disclose like-related information, F(4,172)=16,393, p<0.000, R<sup>2</sup>=.276. The regression coefficients and standard errors are shown in table 26.

Table 26: Multiple regression analysis of willingness to disclose like-related information (Dutch respondents)

Variable	В	SE B	β	Sig
Intercept	1.705	0.450		0.000*
Peer pressure	0.006	0.111	0.004	0.955
Perceived risks	0.038	0.101	0.026	0.703
Perceived benefits	0.595	0.104	0.419	0.000*
Privacy valuation	-0.319	0.090	-0.247	0.001*

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient

Similar to the other regression analyses, this analysis also shows that only Perceived benefits and Privacy valuation significantly influence the Willingness to disclose like-related information. The variables explain 28% of the variance of WD\_like. Perceived benefits have a stronger influence than Privacy valuation.

#### Willingness to disclose contact information

A regression analysis was conducted to predict the influence of Perceived benefits, Perceived risks, Privacy valuation and Peer pressure on the Willingness to disclose contact information (WD\_contact). The variables significantly predict the Willingness to disclose contact information, F(4,172)=6,454, p<0.000, R<sup>2</sup>=.131. The regression coefficients and standard errors are shown in table 27.

respondents				
Variable	В	SE B	β	Sig
Intercept	4.933	0.638		0.000*
Peer pressure	-0.007	0.157	-0.004	0.965
Perceived risks	0.232	0.143	0.124	0.106
Perceived benefits	0.159	0.147	0.087	0.281
Privacy valuation	-0.575	0.128	-0.344	0.000*

Table 27: Multiple regression analysis of Willingness to disclose contact information (Dutch respondents)

Note:  $*=p \le 0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Privacy valuation negatively influences the Willingness to disclose contact information significantly. Privacy valuation explains 13% of the variance of the Willingness to disclose contact information. As differentiation to the other types of Willingness to disclose personal information, Willingness to disclose contact information is only influenced by Privacy valuation. Dutch Facebook users do not want to reveal their contact information as the descriptive results (4.3.3.) show. One possible explanation could be that users are affected by privacy issues that negatively influence the willingness to disclose contact information.

To summarize, all types of Willingness to disclose except the willingness to disclose contact information are significantly influenced by Perceived benefits and Privacy valuation. Perceived benefits positively influence the Willingness to disclose additional, basic, like-related and information by actively posting information. Perceived benefits have no influence on the Willingness to disclose contact information. Privacy valuation negatively influences all types of the Willingness to disclose personal information. For Dutch Facebook users the variables Privacy valuation and Perceived benefits are especially important to make a decision about disclosing personal information. This strongly differs to German Facebook users. The influence of the variables differs between the five types of disclosure in the German model. Dutch Facebook users are – regardless which type of disclosure – mainly affected by Privacy valuation and Perceived benefits and the influence on German Facebook users depends on the type of disclosure. The results of the regression analysis on a detailed level with the five types of Willingness to disclose personal information is shown in figure 10.





Figure 10: Research models with  $\beta$ -values for each type of Willingness to disclose personal information (Dutch respondents)

#### 4.5.4. Mediation analyses (Dutch respondents)

In the German group, Perceived benefits and Perceived risks significantly influence the Willingness to disclose personal information. Therefore, both were tested for mediation effects on the relationship between Privacy concerns and the Willingness to disclose personal information. In the Dutch group, Perceived risks have no influence on the Willingness to disclose (see table 19) and thus no mediating influence was assumed. Therefore, one mediation analyses was conducted to investigate the mediating influence of Perceived benefits (aggregated level) on the relationship of Privacy concerns and Willingness to disclose personal information (aggregated level). The mediation analysis was conducted in four steps, following the instructions of Baron and Kenny (1986).

First, the influence of Privacy concerns on Willingness to disclose personal information was analyzed, F(1,175)=42,341, p<0.000, R<sup>2</sup>=.195. Second, the influence of Privacy concerns on Perceived benefits was determined, F(1,175)=5,835, p<0.017, R<sup>2</sup>=.032. Third, the influence of Perceived benefits on the Willingness to disclose was analyzed, F(1,175)=84,794, p<0.000, R<sup>2</sup>=.326. Due to the significance of all three relationships, a mediating influence of Perceived benefits was assumed. The last step was analyzing the influence of Privacy concerns and Perceived benefits on the Willingness to disclose personal information, F(2,174)=69,748, p<0.000, R<sup>2</sup>=.445. The regression coefficients and standard errors are shown in table 28. The influences of the variables before and with the mediating variable Perceived benefits are shown in figure 11.

Step	Variable	В	SЕв	β	Sig
1	Intercept (Willingness to disclose personal info)	4.274	0.152		0.000*
	Privacy concerns	-0.350	0.054	-0.441	0.000*
2	Intercept (Benefits)	3.391	0.160		0.000*
	Privacy concerns	-0.137	0.057	-0.180	0.017*
3	Intercept (Willingness to disclose personal info)	1.531	0.198		0.000*
	Perceived benefits	0.594	0.064	0.571	0.000*
4	Intercept (Willingness to disclose personal info)	2.483	0.239		0.000*
	Perceived benefits	0.528	0.060	0.508	0.000*
	Privacy concerns	-0.278	0.046	-0.350	0.000*

Table 28: Mediation analyses of Perceived benefits (Dutch respondents)

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE B=Standard error of the coefficient;  $\beta$ =standardized coefficient



Figure 11: Mediation analyses of Perceived benefits (Dutch respondents)

The results of the mediating analyses show that the influence of Privacy concerns on Willingness to disclose personal information remains significant when Perceived benefits is

controlled. Therefore a partial mediating effect of Perceived benefits on the relationship between Privacy concerns and Willingness to disclose personal information is supported. When the dimension Perceived benefits is controlled, the influence of Privacy concerns on the Willingness to disclose personal information is less than without controlling Perceived benefits. This is a possible explanation for the privacy paradox. When users perceive benefits, the perceived privacy concerns have less influence on the Willingness to disclose personal information. The situational factor, perceived benefits, overrides the pre-existing factor, privacy concerns, and positively influences the willingness to disclose personal information. The perceived benefits are thus more important for Dutch Facebook users than privacy concerns.

The results also provide answers to the following two hypotheses:

Hypothesis 1a is supported for Dutch respondents: Privacy concerns influence the Willingness to disclose personal information.

Hypothesis 3a is supported for Dutch respondents: Privacy concerns influence Perceived benefits.

In order to answer hypotheses 2a, a regression analysis was conducted to investigate the influence of Privacy concerns on Perceived risks, F(1,175)=34,800, p<0.000, R<sup>2</sup>=.166. The results are described in table 29.

Table 29: Linear ı	regression	analysis of	Perceived risks	(Dutch	respondents)

Variable	В	SE B	β	Sig
Intercept (Risks)	2.274	4 0.146		0.000*
Privacy concerns	0.305	5 0.052	0.407	0.000*

Note: \*= $p \le 0.05$ ; B=unstandardized regression coefficient; SE <sub>B</sub>=Standard error of the coefficient;  $\beta$ =standardized coefficient

The results show that Privacy concerns significantly influence Perceived risks and explain 16% of the variance of Perceived risks. The influence is strongly positive. Due to the significance of the influence, hypothesis 2a is supported.

Hypothesis 2a is supported for Dutch respondents: Privacy concerns influence perceived risks.

Considering the results of the whole analysis of the Dutch model, it is clear that Dutch respondents, as the German respondents, strongly emphasize their privacy and consequently are concerned about their privacy. They also perceive more security risks than social risks. Apparently due to these security risks like being afraid to be stalked, Dutch Facebook users are not willing to provide their contact information like address or e-mail address. Dutch Facebook users rather enjoy using Facebook by reading information than sharing information.

The results of the analyses of the Dutch model show that Dutch Facebook users are mainly influenced by Perceived benefits and Privacy valuations. That also applies to almost all types of disclosure. Dutch Facebook users are influenced by Perceived benefits and Privacy valuation when they decide to disclose basic personal information, additional information, like-related information and disclosing personal information by actively posting information. They are only influenced by Privacy valuation and not by Perceived benefits when they decide to disclose contact information. These Privacy issues seem to have a strong impact,

because the descriptive results show that Dutch Facebook users are very unwilling to provide contact information like address and e-mail address.

One of the two strongest influencer of Willingness to disclose personal information is Perceived benefits. Remarkable is that for Dutch Facebook users, only Enjoyment of using Facebook and Enjoyment of disclosing personal information on Facebook influence Willingness to disclose personal information. Both sub constructs still explain 39% of the variance the Willingness to disclose. Thus, Dutch Facebook users decide on the basis of enjoyment if they want to disclose certain information.

Perceived benefits also have a mediating influence. When Dutch Facebook users perceive benefits (mainly enjoyment), the influence of Privacy concerns on the Willingness to disclose personal information reduces. This means that benefits (mainly enjoyment) have such a strong positive influence that the negative influence of Privacy concerns on Willingness to disclose personal information decreases. The mediating effect of Perceived benefits is a possible explanation for the privacy paradox. Although people are concerned about their privacy, they disclose personal information on Facebook due to the perceived benefits like enjoyment.

#### 4.6. Comparing German and Dutch models

There are major differences between the results of the analyses of the German and the Dutch respondents. Whereas Perceived risks of the German respondents mediate the relationships between Privacy concerns and the Willingness to disclose personal information, Perceived benefits mediate this relationships by Dutch respondents. German respondents are influenced by various variables, depending on the type of disclosure. In contrast, the Dutch respondents are mainly influenced by Privacy valuation and Enjoyment-benefits. The differences are also visible in the hypotheses (see table 30).

Hypotheses	German	Dutch
1: Privacy valuation influences the Willingness to disclose	Supported	Supported
personal information.		
a: Privacy concerns influence the Willingness to disclose	Supported	Supported
personal information.		
2: Privacy valuation influences Perceived risks.	Supported	Supported
2a: Privacy concerns influence Perceived risks.	Supported	Supported
3: Privacy valuation influences Perceived benefits.	Supported	Supported
3a: Privacy concerns influence Perceived benefits.	Not supported	Supported
4: Perceived risks negatively influence the Willingness to	Supported	Not supported
disclose personal information.		
4a: Security risks negatively influence the Willingness to	Supported	Not supported
disclose personal information.		
4b: Social risks negatively influence the Willingness to	Supported	Not supported
disclose personal information.		
5: Perceived benefits positively influence the Willingness	Supported	Supported
to disclose personal information.		
5a: Perceived convenience of maintaining existing	Supported	Not supported
relationships positively influences the Willingness to		
disclose personal information.		
5b: The opportunity of building new relationships positively	Not supported	Not supported
influences the Willingness to disclose personal		
information.		
5c: Perceived benefits of self-presentation positively	Supported	Not supported
influence the Willingness to disclose personal information.		
5d: Perceived enjoyment of disclosing personal	Supported	Supported
information on Facebook positively influences the		
Willingness to disclose personal information.	Current entre d	Quan arta d
5e: Perceived enjoyment of using Facebook positively	Supported	Supported
influences the Willingness to disclose personal information.		
	Supported	Not ourported
6: Peer pressure influences the Willingness to disclose personal information	Supported	Not supported
7: Peer pressure influences Perceived risks.	Supported	Supported
8: Peer pressure influences Perceived lisks.	Supported	Supported
	Supported	Supported

Perceived risks influence the Willingness to disclose personal information only by the German respondents (H5a-b). The Dutch respondents are not influenced by any type of risk. Dutch respondents are also not influenced by most of the types of benefits. They are only influenced by Enjoyment of disclosing personal information on Facebook and Enjoyment of using Facebook (H6a-e). Also Peer pressure does not influence the Willingness to disclose personal information in the Dutch model (H7). In contrast, German respondents are influenced by almost all types of benefits, except of Relationship building. Also Peer pressure influences the Willingness to disclose personal information in the Dutch model. To sum up, only two of the hypotheses are not supported in the German model and seven hypotheses are not supported in the Dutch model.

### 5. Conclusions and discussion

In this chapter, a reflection is given on the theoretical and practical implications of this study. After describing the major findings of this study, a critical reflection about the method, the instrument and general future research directions are described.

This study focuses on the privacy paradox and personal information disclosure on Facebook. The variables peer pressure, privacy valuation and concerns, perceived risks and perceived benefits are measured to explain the willingness to disclose personal information of Facebook users and to give a possible explanation for the privacy paradox. The aim of this study was to provide an answer on the following research question: "*To what extent do privacy concerns, peer pressure, perceived risks and perceived benefits affect an individual's willingness to disclose personal information on Facebook?*". It is remarkable that the variables explain around half (42% for Germans and 50% for Dutch Facebook users) of the variance of willingness to disclose personal information. This means that around the half of all imaginable influencing factors are covered by these four tested variables. This is an indication for the relevance of peer pressure, privacy valuation, perceived risks and perceived benefits in this context.

Additionally, there are four most important results of this study. First, there are differences between German and Dutch Facebook users regarding the willingness to disclose personal information. Second, it was examined that there are five different types of willingness to disclose personal information which are worth to analyze in more detail. Third, the two-sided influence of peer pressure that positively influences perceived benefits and perceived risks and therefore influences indirectly willingness to disclose personal information in a positive and a negative way was determined. Fourth, the results show that perceived benefits have a very strong and extraordinary influence on the willingness to disclose personal information. The influence of perceived benefits is discussed together with the privacy calculus that describes the balancing act between risks and benefits when users decide to disclose personal information on Facebook.

#### Differences between German and Dutch Facebook users

Although Germany and the Netherlands are neighboring countries, they do differ concerning the personal information disclosure on Facebook. Whereas German Facebook users are influenced by peer pressure, perceived benefits, perceived risks and privacy valuation, Dutch Facebook users are mainly influenced by privacy valuation, the enjoyment of using Facebook and the enjoyment of disclosing personal information. This also applies to all types of disclosure. Dutch Facebook users are not affected by perceived risks or the influence of peers. In contrast, German users are influenced by all four variables (peer pressure, perceived risks, privacy valuation) and it depends on the disclosure type which of the factors has the most influence.

The results of the study confirm that German Facebook users perceive more privacy concerns than Dutch Facebook users. Furthermore, this study reinforces the statement of Krasnova and Veltri (2011) that Germans are driven by privacy concerns, when making a decision about disclosing personal information. This is also shown in the results of this study (see table 5 in 4.3.1.). The strong sense of privacy is one reason why German Facebook users. This is also confirmed by Uilenberg (2015) who examined that German online shoppers are less

willing to disclose personal information. Another outcome of this study shows that German respondents are less willing to disclose personal information – regardless the type of disclosure. The assumed differences between Germans and the Dutch regarding the willingness to disclose personal information are confirmed by this current study. This study provides new insights by analyzing five different types of information disclosure on Facebook. Whereas all types of disclosure of the Dutch Facebook users are mainly influenced by enjoyment-factors and privacy issues, the influence of peer pressure, benefits, risks and privacy valuation of German Facebook users depends on the type of disclosure. This result again indicates the strong sense of privacy of the Germans Facebook users.

#### Five types of willingness to disclose personal information

The results of this study show that willingness to disclose personal information needs to be differentiated into five different disclosure types: Willingness to disclose basic personal information, willingness to disclose contact information, willingness to disclose additional information, willingness to disclose information by actively posting information, and willingness to disclose like-related information. This is one of the most important findings of this study, because in previous studies it is often measured as one variable. These different disclosure types are influenced by different factors. For example willingness to disclose likerelated information of German Facebook users is only influenced by the situational factors, perceived benefits and perceived risks. The pre-existing factors, privacy valuation and peer pressure, do not influence the rather affect-driven disclosure by clicking on the "like"-button on Facebook. In contrast, willingness to disclose information by actively posting information of German Facebook users is influenced by all four variables (privacy valuation, peer pressure, perceived benefits and perceived risks). When German Facebook users take their time to think about, for example, an experience they want to share, they consider all possible factors before they post information. These both examples show that it is necessary to analyze the willingness to disclose personal information in detail.

Previous literature suggest to measure willingness to disclose personal information in different types (Chang et al., 2014, Taddicken, 2014). This study confirms the importance of investigating different types of disclosure. Taddicken determined four types of disclosure: Self-disclosure of factual information with open access, Self-disclosure of factual information with restricted access, Self-disclosure of sensitive information with open access. She differentiates between open and closed access as well as sensitive and factual information. Also Chang et al. (2014) differentiate disclosure types based on the level of sensitiveness of the given information. These differentiations cannot be confirmed in this study; however it shows that there are many different ways to analyze willingness to disclose in more detail. There is not yet a general differentiation of willingness to disclose personal information, but the relevance to analyze it in more detail is provided.

#### The influence of peer pressure

Peer pressure is measured in this study as a social counterpart to the rational privacy calculus and as a pre-existing factor influencing willingness to disclose personal information. It was assumed that in a social environment as it is on Facebook, the influence of peers affects an individual's disclosure behavior. This assumption is met for German Facebook users on the one hand. Dutch Facebook users, on the other hand, are not influenced by peer pressure. Nevertheless, peer pressure is a very interesting variable to consider in this

context. The results of this study describe that peer pressure positively influences perceived risks and perceived benefits which indirectly influences the willingness to disclose personal information in a negative and a positive way. If friends for example post holiday pictures and express their fun of disclosing information on Facebook, an individual which observes this behavior will also perceive the benefit of disclosing nice pictures on Facebook (e.g. for positive self-presentation). This simple behavior of disclosing pictures influences an individual's perceived benefits and therefore reinforces the willingness to disclose personal information on Facebook. However, peer pressure also affects an individual's willingness to disclose in a negative way. If friends for example tell about their bad experiences with stolen identity or privacy frauds, an individual's perception of risks enhances. Then, an individual is aware of possible risks of disclosing personal information on Facebook.

Previous studies found evidence for social pressure to use Facebook (e.g. Quan-Haase and Young, 2015). This current study takes a further step and shows that peer pressure even influences the behavior on Facebook. Other studies emphasized the impact of peer pressure of children and teenager concerning information disclosure on Social Network Sites (De Souza and Dick, 2009, Koroleva et al., 2011). The findings of this study confirm these results and show that not only children or teenager are affected by peer pressure also Facebook users above 18 years are influenced by their peers. In general, the effects of peer pressure in the context of Social Network Sites are hardly considered in previous literature. This current study fills this gap and provides new insights in the influence of peer pressure on the willingness to disclose personal information, perceived benefits and perceived risks.

#### The influence of perceived benefits and the privacy calculus

Perceived benefits of disclosing personal information strongly influence the willingness to disclose personal information. This becomes especially clear in the results of the Dutch model. Dutch Facebook users are only influenced by perceived benefits and privacy valuation. Only these two variables explain the half of the total variance of willingness to disclose personal information, which stresses the strong influence of these two factors. This study did not only analyze the influence of general perceived benefits, but also analyzed perceived benefits in detail and determined five types of perceived benefits. These five types of benefits are based on the results of Krasnova et al. (2010), who identified the benefits of convenience of maintaining existing relationships, new relationship building, self-presentation and enjoyment. This current study partly confirms the differentiation of perceived benefits, suggested by Krasnova et al. (2010). The last benefit, enjoyment, is separated into two types of enjoyment: Enjoyment of disclosing personal information and enjoyment of using Facebook. There is a clear difference between the pleasure to use Facebook and to actually enjoy the disclosure of information. Dutch Facebook users are mainly influenced by these two enjoyment-benefits. This means that Dutch users are driven by pleasure when they decide to disclose personal information on Facebook. This result shows that the perceived benefits is an extraordinary influencer of willingness to disclose personal information and it also stresses the relevance to analyze different types of benefits.

Besides the new insights on the influence of perceived benefits on information disclosure, the determined mediating effect of perceived benefits is also an important finding of this study. There is a crucial difference between German and Dutch Facebook users regarding the mediating effect of perceived risks and perceived benefits. Perceived risks mediate the influence of privacy concerns on the willingness to disclose personal information for German

Facebook users whereas perceived benefits influence the relationship between privacy concerns and the willingness to disclose personal information for Dutch Facebook users. This means, when Dutch Facebook users perceive benefits, the influence of privacy concerns on willingness to disclose personal information reduces. In other words, Dutch Facebook users have privacy concerns, which negatively influence the willingness to disclose personal information. However, due to perceived benefits, Dutch Facebook users disclose personal information. However, due to perceived benefits, Dutch Facebook users disclose personal information despite these privacy concerns. They perceive benefits of disclosing information and feel more positive aspects like enjoyment, thus the negative influence of privacy concerns is less important in the decision to disclose. The mediating effects of perceived benefits and perceived risks are one possible explanation for the privacy paradox. Previous literature determines mediating effects and suggests analyzing mediating factors in this context (e.g. Taddicken, 2014, Kehr et al., 2015). These results confirm the findings of Kehr et al. (2015), who determined that situational benefit perceptions override pre-existing factors like privacy concerns.

This study emphasizes the mediating influences of perceived risks and perceived benefits. Both factors are weighed out before Facebook users disclose personal information in a certain situation. This balancing process of risks and benefits describes the privacy calculus. If perceived benefits outweigh the perceived risks, a disclosure of personal information is likely. Although the risks and benefits of disclosing personal information are often analyzed, it remains unclear how both influence each other and how the process of balancing can be determined. Also this study provides no results about the process of outweighing the perceived benefits and the perceived risks. However, the findings show that perceived benefits have a far stronger influence on the willingness to disclose personal information than perceived risks (see e.g. figure 9). This significant difference serves as a basis for future research that investigates the privacy calculus in this context.

#### 5.1 Future research directions

This study contributes to the theoretical literature by six important results. First, it confirms the research model which gives valuable insights in the willingness to disclose personal information on Facebook and the influencing factors. Second, it takes a further step in explaining the privacy paradox by determining a mediating influence of perceived risks and perceived benefits. Consequently, this study serves as a basis for future research that examines the privacy calculus in the context of Social Network Sites. Third, this study reveals five types of information disclosure and emphasizes the importance of considering willingness to disclose in more detail. Also the different types of perceived benefits and perceived risks were investigated. For example Dutch Facebook users are mainly influenced by two types of benefits: enjoyment of disclosing personal information and enjoyment of using Facebook. The fourth major contribution to scientific literature is the difference between these two types of enjoyment-benefits. Krasnova et al. (2010) describes enjoyment as a benefit to use Facebook. In this study, the focus lies on the willingness to disclose information on Facebook. Therefore other items were used to measure the enjoyment of disclosing information. The results show that there is a clear difference, which stresses the need to differentiate between the two types of benefits mentioned before in future research. Fifth, the findings of this current study show that relational risks and face risks are merged to social risks. This result provides new insights in the perception of risks and do not confirm the risk differentiations of Lee et al. (2013), who separated relational and face risks. The findings of this current study show that social risks are less relevant than security risks

concerning the disclosure of information. Consequently, an important result of this study is that Facebook users are more afraid to be stalked or robbed (security risks) than getting shamed or getting into trouble with friends (social risks) on Facebook. This also comes along with the denial to disclose contact information which would for example help criminals to find an individual's home and thus threaten an individual's security. Sixth, significant differences between the German and Dutch respondents are determined in this study. Dutch respondents are mainly influenced by enjoyment and privacy valuations when they decide to disclose personal information. German respondents are also influenced the strongest by perceived benefits (like the Dutch), but they are additionally influenced by peer pressure, privacy valuation and perceived risks. The influence depends on the types of disclosure for the German Facebook users.

These six most important contributions to scientific literature stress the relevance of this study in scientific context. Moreover, it also contributes to the practice. The conclusions of this study could help Social Network providers to find a new way to encourage users to disclose personal information and consequently ensure the use of SNS. Dutch SNS-providers could for example focus on the perceived enjoyment of using SNS and also perceived enjoyment of disclosing personal information. When Dutch Facebook users perceive enjoyment, they are willing to disclose personal information. The organization Facebook could use this study to understand the motivations to disclose personal information and design on the basis of this information, appropriate information to convince users to disclose personal information on Facebook. They could for example focus on reducing the perception of security risk to motivate Facebook users to provide contact information.

This current study provides major contributions to scientific and practical contexts. Nevertheless, there are still research limitations that give ideas for future research topics. Some additional variables like privacy awareness, habits or trust are very interesting to consider in this context. Facebook users could, for example, disclose information due to habits. They could be used to share holiday pictures. Privacy awareness would be interesting to analyze in order to ensure that Facebook users actual are aware of possible privacy frauds. Due to feasibility reasons, these variables could not be investigated in this study, but it is recommended to measure these variables in further research. The respondents of this study were 18 years and older. Especially regarding peer pressure, it is interesting to analyze the influencing factors of willingness to disclose personal information with other age groups. It would also be interesting to compare different age groups. Due to the difference between German and Dutch respondents in this study, it is assumed that other nationalities would gain different results, too. Therefore it is recommended in further research to investigate different nationalities and consider the influence of cultural variables. In this study, the numbers of respondents in the German and Dutch group strongly differ. Further research should aim to analyze more comparable groups of respondents. It is further recommended to compare other control variables. There might be differences between male and female Facebook users or low and high educated Facebook users.

The chosen method to analyze the research model was appropriate. In the next step it would be interesting to combine quantitative and qualitative research methods – especially to gain additional insights in the process of the privacy calculus. In further analyses the results of this study can serve as a basis for qualitative research methods. For example interviews would gain more detailed information and would take a step further to explain the willingness to disclose personal information and also to explain the privacy paradox.

The survey was comprehensible which is proven by good internal consistency of the scales. This study loses many responses due to incomplete surveys. In further research, this should be prevented by using appropriate technical support and a process indication. Although there are still some limitations and recommendation for further research, this study gains relevant and new information and contributes to scientific literature as well as to the practice.

### References

Acquisti, A. & Gross, R. (2006). Imagined communities: Awareness, information sharing, and privacy on the Facebook. In G. Danezis & P. Golle (Eds.). Privacy enhancing technologies 4258, pp. 36–58. Berlin, Heidelberg: Springer.

Archer, J. L. (1980). The self in social psychology. In D. Wegner & R. Vallacher (Eds.), *Self-disclosure* (pp. 183–204). London: Oxford University.

Baron, R. M., Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations.

Böhme, R., Pötzsch, S. (2012). Collective Exposure: Peer Effects in Voluntary Disclosure of Personal Data. FC 2011, LNCS 7035, p. 1–15

Boyd, D. (2007). Why Youth (Heart) Social Network Sites: The Role of Networked Publics in Teenage Social Life, in D. Buckingham, (ed.) *Youth, Identity, and Digital Media*, Cambridge: MIT Press, pp.119-142.

Chang, C. W., Heo, J. (2014). Visiting theories that predict college students' self-disclosure on Facebook. *Computers in Human Behavior 30*, p. 79–86

Cheung, C., Lee, Z. W. Y., & Chan, T. K. H. (2015). Self-disclosure in social networking sites. The role of perceived cost, perceived benefits and social influence. *Internet Research 25*(2), p. 279-299

De Souza, Z., Nick, G. N. (2009). Disclosure of information by children in social networking— Not just a case of "you show me yours and I'll show you mine". *International Journal of Information Management 29*, p. 255–261

Debatin, B., Lovejoy, J. P., Horn, A.-K., & Hughes, B. N. (2009). Facebook and online privacy: Attitudes, behaviors, and unintended consequences. *Journal of Computer-Mediated Communication 15*(1), p. 83–108

Dooley, D. (2001). Social research methods (4e edition). New Jersey: Prentice Hall.

Dinev, T., Hart, P. (2006). An Extended Privacy Calculus Model for E-Commerce Transactions. *Information Systems Research 17* (1), p. 61-80

Dinev, T., Xu, H., Smith, J. H., & Hart, P. (2013). Information privacy and correlates: an empirical attempt to bridge and distinguish privacy-related concepts. *European Journal of Information Systems 22*, p. 295–316

Ellison, N. B., Steinfield, C., & Lampe, C. (2007) The benefits of Facebook "friends:" Social capital and college students' use of online social network sites, *Journal of Computer-Mediated Communication* 12(4), p.1143–1168

Facebook (2015). Facebook Reports Fourth Quarter and Full Year 2015 Results. Retrieved on 10.04.2016 from: http://investor.fb.com/releasedetail.cfm?ReleaseID=952040

Falk, S., Riel, N. (2013). *Cultural differences in user privacy behavior on Social Networking Sites. An empirical study comparing German and Swedish Facebook Users*. Jönköping University, Sweden.

Fogel, J., Nehmad, E. (2009). Internet social network communities: Risk taking, trust, and privacy concerns. *Computers in Human Behavior 25*, p.153–160

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind: Intercultural Cooperation and its Importance for Survival.* McGraw Hill.

Hui, K-L., Tan, B. C. Y., & Goh, C-Y. (2006) Online Information Disclosure: Motivators and Measurements, *ACM Transactions on Internet Technology* 6(4), p.415-441

Kehr, F., Wentzel, D., Kowatsch, T. & Fleisch, E. (2015). *Rethinking privacy decision: Preexisting emotional states, and a situation privacy calculus.* Paper presented at Twenty-Third European Conference on Information Systems (ECIS), Münster, Germany.

Koroleva, K., Brecht, F., Goebel, L. & Malinova, M. (2011). 'Generation Facebook' - A Cognitive Calculus Model of Teenage User Behavior on Social Network Sites. *AMCIS 2011 Proceedings - All Submissions.* Paper 392. http://aisel.aisnet.org/amcis2011\_submissions/392

Krasnova, H., Kolesnikova, E., & Guenther, O. (2009). "It Won't Happen To Me!": Self-Disclosure in Online Social Networks. *AMCIS 2009 Proceedings.* Paper 343.

Krasnova, H., Spiekermann, S., Koroleva, K., & Hilebrand, T. (2010). Online Social Networks: Why We Disclose. *Journal of Information Technology 25*(2), p. 109-125

Krasnova, H., Veltri, N. F. (2011). Behind the Curtains of Privacy Calculus on Social Networking Sites: The Study of Germany and the USA. *Wirtschaftinformatik Proceedings* 2011. Paper 26.

Lee, E., Ahn, J., & Kim, Y. J. (2014). Personality traits and self-presentation at Facebook. *Personality and Individual Differences 69*, p.162-167

Lee, H., Park, H., & Kim, J. (2013). Why do people share their context information on Social Network Services? A qualitative study and an experimental study on users' behavior of balancing perceived benefit and risk. Int. J. Human – Computer Studies 71, p. 862–877

Lewis, K., Kaufman, J., & Christakis, N. (2008). The Taste for Privacy: An Analysis of College Student Privacy Settings in an Online Social Network. Journal of Computer-Mediated Communication 14, p. 79-100

Liu, C., Ang, R. P., & Lwin, M. O. (2013). Cognitive, personality, and social factors associated with adolescents' online personal information disclosure. *Journal of Adolescence 36*, p. 629–638

Ljepava, N., Orr, R. R., Locke, S., & Ross, C. (2013). Personality and social characteristics of Facebook non-users and frequent users. *Computers in Human Behavior 29*, p. 1602-1607

Lowry, P. B., Cao, J., & Everard, A. (2011). Privacy Concerns Versus Desire for Interpersonal Awareness in Driving the Use of Self-Disclosure Technologies: The Case of I-Instant Messaging in Two Cultures. *Journal of Management Information Systems (27)4*, p. 163–200 Min, J., Kim, B. (2015). How Are People Enticed to Disclose Personal Information Despite Privacy Concerns in Social Network Sites? The Calculus Between Benefit and Cost. *Journal of Association for Information Science and Technology 66*(4), p.839-857

NDR (2015). Vorsicht Datendiebe tummeln sich auf Facebook. Retrieved on 23.09.2015 from: http://www.ndr.de/nachrichten/netzwelt/Vorsicht-Datendiebe-tummeln-sich-auf-Facebook,facebook1278.html

Nosko, A., Wood, E., & Molema, S. (2010). All about me: Disclosure in online social networking profiles: The case of FACEBOOK. *Computers in Human Behavior 26*, p.406–418

Passmore, C., Dobbie, E. A., Parchmann, M. & Tysinger J. (2002). Guidelines for Constructing a Survey. *Family Medicine 34*(4), 281-286.

Petley, J. (2013). *Media and Public Shaming: Drawing the Boundaries of Disclosure*. London. I.B. Tauris & Co. Ltd.

Preibusch (2013). Guide to measuring privacyconcern: Review of survey and observational instruments. Int. J. Human - Computer Studies 71, p. 1133–1143

Quan-Haase, A., Young, A. L. (2010). Uses and Gratifications of Social Media: A Comparison of Facebook and Instant Messaging. *Bulletin of Science, Technology & Society 30*(5), p. 350–361

Sharma, S., Crossler, R. E. (2014). Disclosing too much? Situational factors affecting information disclosure in social commerce environment. *Electronic Commerce Research and Applications 13*, p. 305–319

Smith, J. H., Milberg, S. J., & Burke, S. J. (1996). Information Privacy: Measuring Individuals' Concerns About Organizational Practices. MIS Ouarterly June, p. 167-196

Statista (2014). Distribution of active Facebook users worldwide as of 4th quarter 2014, by age. Retrieved on 02.01.2016 from: http://www.statista.com/statistics/376128/facebook-global-user-age-distribution/

Statista (2015a). Prognose zur Anzahl der weltweiten Nutzer Sozialer Netzwerke. Retrieved on 23.09.2015 from: http://de.statista.com/statistik/daten/studie/219903/umfrage/prognose-zur-anzahl-der-weltweiten-nutzer-sozialer-netzwerke/

Statista (2015b). Anteil der Nutzer von Facebook in Deutschland nach Altersgruppen. Retrieved on 23.09.2015 from:

http://de.statista.com/statistik/daten/studie/321195/umfrage/anteil-der-nutzer-von-facebookin-deutschland-nach-altersgruppen/

Statista (2015c). Im deutschen Web gestohlene Identitäten und Passwörter nach Plattformen. Retrieved on 23.09.2015 from:

http://de.statista.com/statistik/daten/studie/192961/umfrage/im-deutschen-web-gestohlene-identitaeten-und-passwoerter-nach-plattformen/

Statista (2015d). Ranking der größten Social Networks und Messenger nach der Anzahl der monatlich aktiven Nutzer (MAU) im Jahr 2014 (in Millionen). Retrieved on 08.10.2015 from: http://de.statista.com/statistik/daten/studie/181086/umfrage/die-weltweit-groessten-social-networks-nach-anzahl-der-user/

Statista (2015e). Wie häufig nutzt Du die Plattformen Facebook und YouTube? Retrieved on 23.10.2015 from:

http://de.statista.com/statistik/daten/studie/151216/umfrage/nutzungshaeufigkeit-von-facebook-und-youtube-in-deutschland/

Statista (2016). Number of Facebook users in Germany from 2014 to 2018 (in millions). Retrieved on 05.05.2016 from: http://www.statista.com/statistics/283629/germany-number-of-facebook-users/

Taddei, S., Contena, B. (2013). Privacy, trust and control: Which relationships with online self-disclosure? *Computers in Human Behavior 29*, p. 821–826

Taddicken, M. (2014). The 'Privacy Paradox' in the Social Web: The Impact of Privacy Concerns, Individual Characteristics, and the Perceived Social Relevance on Different Forms of Self-Disclosure. *Journal of Computer-Mediated Communication 19*, p. 248–273. doi:10.1111/jcc4.12052

Uilenberg, A. (2015). *Willingness to disclose personal information when shopping online: a comparison between consumers from the Netherlands, Germany, and Indonesia* (unpublished master's thesis). University of Twente, Enschede, Netherlands.

Van Dijk, J. (2012). *Networks: The Nervous System of Society.* Chapter 2 of *The Network Society, Third Edition.* pp. 22-48. London, Thousand Oaks CA, New Delhi and Singapore: Sage publications.

Xu, H., Dinev, T., Smith, J. H., & Hart, P. (2008). Examining the Formation of Individual's Privacy Concerns: Toward an Integrative View. *ICIS 2008 Proceedings. Paper 6.* 

Youn, S. (2009). Determinants of Online Privacy Concern and Its Influence on Privacy Protection Behaviors Among Young Adolescents. *The Journal of Consumer Affairs (43)3*, p. 389–418

Zhou, T. & Li, H. (2014). Understanding mobile SNS continuance usage in China from the perspectives of social influence and privacy concern. *Computers in Human Behavior* 37, p. 283 – 289

Zlatolas, L. N., Welzer, T., Hericko, M., & Hölbl, M. (2015). Privacy antecedents for SNS selfdisclosure: The case of Facebook. *Computers in Human Behavior 45*, p. 158–167

### Appendix A: Overview of the scales

Construct	Source	Original	Items used in this study		
		items		-	
			English	German	Dutch
Facebook	Koehorst	1) Heb je een	FE1 Do you	FE1 Haben Sie	FE1 Heb je een
Facebook experience	Koehorst (2013)	Facebook- profiel? 2) Hoe vaak bezoek je Facebook? 3) Hoe lang zit je ongeveer per keer op Facebook? 4) Hoe lang heb je ongeveer een Facebook- profiel? 5) Hoeveel Facebook-	FE1 Do you have a Facebook- profile? FE2 Since when do you have a Facebook- profile? FE3 How often do you visit Facebook? FE4 On average, how much time do you spend on Facebook per	ein Facebook- Profil? FE2 Seit wann haben Sie ein Facebook-Profil? FE3 Wie oft besuchen Sie Facebook? FE4 Wie viel Zeit verbringen Sie im Durchschnitt auf Facebook pro Besuch? FE5 Wie viele Facebook- Freunde haben	Facebook profiel? FE2 Sinds wanneer heb je een Facebook profiel? FE3 Hoe vaak bezoek je Facebook? FE4 Hoe lang duurt je gemiddelde bezoek op Facebook (per keer)? FE5 Hoeveel
		vrienden heb je ongeveer?	visit? FE5 How many friends do you have?	Sie ungefähr?	Facebook- vrienden heb je ongeveer?
Willingness to	Self-		Imagine you	Stellen Sie sich	WD_profile 1 Je
disclose_profile	developed		create your Facebook- profile today. How willing are you to disclose following information?	vor, Sie erstellen heute für sich ein Facebook-Profil. Wie gerne geben Sie folgende Informationen an?	echte voornaam WD_profile 2 Je echte achternaam WD_profile 3 Je echte geboorte datum WD_profile 4 Je
			WD_profile 1 Your real first name WD_profile 2 Your real last name WD_profile 3 Your real birthday WD_profile 4 Your real e- mail address WD_profile 5 A real profile picture of you WD_profile 6 Your real	WD_profile 1 Ihren wahren Vornamen WD_profile 2 Ihren wahren Nachnamen WD_profile 3 Ihren wahren Geburtstag WD_profile 4 Ihre wahre E- Mail-Adresse WD_profile 5 Ein wahres Profilbild von Ihnen WD_profile 6 Ihre wahre Adresse	echte e-mail adres WD_profile 5 Een echte foto van jezelf WD_profile 6 Je echte adres WD_profile 7 De echte naam van jouw school WD_profile 8 Je echte beroepservaring WD_profile 9 Je ware geloof WD_profile 10 Je echte

Table 31: Overview of the scales

			address WD_profile 7 The real name of your school WD_profile 8 Your real work experiences WD_profile 9 Your real religious views WD_profile 10 Your real political views	WD_profile 7 Den wahren Namen Ihrer Schule WD_profile 8 Ihre wahre Berufserfahrung WD_profile 9 Ihre wahren religiösen Ansichten WD_profile 10 Ihre wahren politischen Ansichten	politieke voorkeur WD_profile 11 Je echte familie leden WD_profile 12 Je echte relatie- status
			WD_profile 11 Your real family members WD_profile 12 Your real relationship status	WD_profile 11 Ihre wahren Familienmitglieder WD_profile 12 Ihren wahren Beziehungsstatus	
Willingness to disclose_ communicative actions	Ruud Koehorst (2013) / α =0.83	<ol> <li>I filled in my first name.</li> <li>I filled in my last name.</li> <li>I filled in my date of birth.</li> <li>I filled in my date of birth.</li> <li>I filled in what town I live in.</li> <li>I filled in where I work.</li> <li>I filled in where I work.</li> <li>I filled in who my family members are.</li> <li>I filled in if I have a relation.</li> <li>I filled in my phone number.</li> <li>I filled in my phone</li> <li>I filled in my</li> <li>I filled in my</li> <li>I filled in my</li> <li>I filled in that</li> <li>I often use</li> <li>Facebook to</li> <li>keep my</li> <li>friends up-to- date on what</li> <li>I'm</li> <li>I often</li> </ol>	Now you signed up on Facebook, how willing are you  WD_actions 1 to keep your friends up-to- date on what you're doing at that moment. WD_actions 2 to share your opinion on Facebook. WD_actions 3 to click "Like" when you see something you like. WD_actions 4 to share on Facebook where you are at that moment. WD_actions 5 to share pictures about yourself on	Jetzt, da Sie bei Facebook angemeldet sind, wie gerne WD_actions 1 halten Sie Ihre Freunde über Sie auf dem neusten Stand? WD_actions 2 teilen Sie Ihre Meinung auf Facebook? WD_actions 3 klicken Sie auf "gefällt mir", wenn Sie etwas sehen, dass Sie mögen? WD_actions 4 teilen Sie auf Facebook, wo Sie gerade sind? WD_actions 5 teilen Sie Fotos von Ihnen auf Facebook? WD_actions 6 reagieren Sie öffentlich auf Fotos oder Nachrichten von	Nu je op Facebook aangemeld bent, hoe graag  WD_actions 1 houdt je jouw vrienden over jou op de hoogte? WD_actions 2 deel je jouw mening op Facebook? WD_actions 3 klik je op "vind ik leuk" als je iets ziet wat je leuk vindt? WD_actions 4 deel je op Facebook waar je precies bent? WD_actions 5 deel je fotos van jezelf op Facebook? WD_actions 6 reageer je zichtbaar op fotos of
	1		- · ·		· · · · ·
---------------	---------------	---	---	--	---
		11) I often	Facebook.	anderen	berichten van
		click 'Like'	WD_actions 6	Facebook-	andere
		when I see	to react	Nutzern?	Facebook-
		something I	publicly to	WD_actions 7	gebruikers?
		like.	pictures or	klicken Sie auf	WD_actions 7
		12) I often	messages of	"gefällt mir" bei	klik je op
		share on	other	einer Facebook-	"vind ik leuk" bij
		Facebook	Facebook-	Seite von einer	een Facebook-
		where I am at	users.	Marke (z.B.	site van een
		that moment.	WD actions 7	Nike)?	merk (bijv.
		13) I often	to "like" a	WD actions 8	Nike)?
		share picture	Facebook-	treten Sie	WD_actions 8
		I'm in on	page of a	öffentlichen	wordt je
					•
		Facebook.	brand (e.g.	Facebook-	zichtbaar lid van
		14) I often	Nike).	Gruppen bei?	Facebook-
		react to	WD_actions 8	WD_actions 9	groepen?
		pictures or	to join public	zeigen Sie, dass	WD_actions 9
		messages of	groups on	Sie an	laat je zien
		other	Facebook.	Veranstaltungen	dat je
		Facebook-	WD_actions 9	teilnehmen, die	deelneemt aan
		users.	to show that	auf Facebook	evenementen
		15) I often use	you participate	angekündigt	die op
		the Facebook	on events	werden?	Facebook
		chat. *	posted on		aangekondigd
		removed	Facebook.		worden?
Peer pressure	Ljepava et	1) Most of my	PP1 My friends	PP1 Meine	PP1 Mijn
	al (2013) / α	friends	are sharing	Freunde teilen	vrienden delen
	=0.82	actively	information on	Informationen auf	informatie op
	0.02	maintain their	Facebook.	Facebook.	Facebook.
		Facebook	PP2 My friends	PP2 Meine	PP2 Mijn
		profiles.	suggest to post	Freunde raten	vrienden raden
		2) My friends	certain things	mir, bestimmte	me aan
		think that	•		
			(e.g. pictures)	Dinge über mich	bepaalde zaken
		Facebook is	about myself	(z.B. Fotos) auf	over mijzelf te
		important for	on Facebook.	Facebook zu	delen op
		their social	PP3 Most of	teilen.	Facebook (bijv.
	1	life.	my friends	PP3 Meine	foto's).
		a) <b>a</b>			,
		3) People I	actively	Freunde pflegen	PP3 Mijn
		meet tell me to	actively maintain their	Freunde pflegen aktiv ihr	PP3 Mijn vrienden
		meet tell me to "find them on	actively maintain their Facebook	Freunde pflegen	PP3 Mijn vrienden onderhouden
		meet tell me to	actively maintain their	Freunde pflegen aktiv ihr	PP3 Mijn vrienden
		meet tell me to "find them on	actively maintain their Facebook	Freunde pflegen aktiv ihr Facebook-Profil.	PP3 Mijn vrienden onderhouden
		meet tell me to "find them on Facebook".	actively maintain their Facebook profiles.	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine	PP3 Mijn vrienden onderhouden hun Facebook
		meet tell me to "find them on Facebook". 4) My friends	actively maintain their Facebook profiles. PP4 My friends	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde	PP3 Mijn vrienden onderhouden hun Facebook profiel actief.
		meet tell me to "find them on Facebook". 4) My friends rarely use	actively maintain their Facebook profiles. PP4 My friends rarely disclose	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn
		meet tell me to "find them on Facebook". 4) My friends rarely use Facebook.	actively maintain their Facebook profiles. PP4 My friends rarely disclose information on	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen selten	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn vrienden delen
		meet tell me to "find them on Facebook". 4) My friends rarely use Facebook. 5) I will miss important	actively maintain their Facebook profiles. PP4 My friends rarely disclose information on Facebook.	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen selten Informationen auf Facebook.	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn vrienden delen zelden
		meet tell me to "find them on Facebook". 4) My friends rarely use Facebook. 5) I will miss important things if I am	actively maintain their Facebook profiles. PP4 My friends rarely disclose information on Facebook. PP5 People I meet tell me to	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen selten Informationen auf Facebook. PP5 Leute, die	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn vrienden delen zelden informatie op Facebook.
		meet tell me to "find them on Facebook". 4) My friends rarely use Facebook. 5) I will miss important things if I am not on	actively maintain their Facebook profiles. PP4 My friends rarely disclose information on Facebook. PP5 People I meet tell me to "find them on	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen selten Informationen auf Facebook. PP5 Leute, die ich treffe, sagen	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn vrienden delen zelden informatie op Facebook. PP5 Mensen
		meet tell me to "find them on Facebook". 4) My friends rarely use Facebook. 5) I will miss important things if I am not on Facebook.	actively maintain their Facebook profiles. PP4 My friends rarely disclose information on Facebook. PP5 People I meet tell me to "find them on Facebook".	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen selten Informationen auf Facebook. PP5 Leute, die ich treffe, sagen mir, dass ich sie	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn vrienden delen zelden informatie op Facebook. PP5 Mensen die ik ontmoet
		meet tell me to "find them on Facebook". 4) My friends rarely use Facebook. 5) I will miss important things if I am not on Facebook. 6) I attend	actively maintain their Facebook profiles. PP4 My friends rarely disclose information on Facebook. PP5 People I meet tell me to "find them on Facebook". PP6 My friends	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen selten Informationen auf Facebook. PP5 Leute, die ich treffe, sagen mir, dass ich sie "auf Facebook	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn vrienden delen zelden informatie op Facebook. PP5 Mensen die ik ontmoet zeggen dat ik
		meet tell me to "find them on Facebook". 4) My friends rarely use Facebook. 5) I will miss important things if I am not on Facebook.	actively maintain their Facebook profiles. PP4 My friends rarely disclose information on Facebook. PP5 People I meet tell me to "find them on Facebook".	Freunde pflegen aktiv ihr Facebook-Profil. PP4 Meine Freunde veröffentlichen selten Informationen auf Facebook. PP5 Leute, die ich treffe, sagen mir, dass ich sie	PP3 Mijn vrienden onderhouden hun Facebook profiel actief. PP4 Mijn vrienden delen zelden informatie op Facebook. PP5 Mensen die ik ontmoet

				<b>F</b>	
		coordinated	informed about	Facebook halten	PP6 Via
		and organized	their lives by	mich meine	Facebook
		on	posting on	Freunde	houden mijn
		Facebook.	Facebook.	regelmäßig über	vrienden mij
		7) My friends	PP7 My friends	ihr Leben auf dem	van hun
		spend a lot of	ask me to join	neusten Stand.	activiteiten op
		time on	public groups	PP7 Meine	de hoogte.
		Facebook.	on Facebook.	Freunde fragen	PP7 Mijn
		8) My friends	PP8 My friends	mich, auf	vrienden vragen
		play games on	ask me to "like"	Facebook	mij om op
		Facebook.	their pages.	Gruppen	Facebook lid te
		9) Most of my	PP9 My friends	beizutreten, die	worden van een
		friends have	suggest to	für jeden sichtbar	groep die voor
		many	"like" a	sind.	iedereen
		Facebook	Facebook	PP8 Meine	zichtbaar is.
		friends.	page of a	Freunde fragen	PP8 Mijn
		10) My friends	famous	mich, auf ihrer	vrienden vragen
		communicate	person.	Seite auf "gefällt	mij op hun Faasbaak
		with each other on	PP10 My	mir" zu klicken. PP9 Meine	Facebook-
			friends spend a		pagina op "vind ik leuk" te
		Facebook. 11) Facebook	lot of time sharing	Freunde raten mir, auf "gefällt	ik ieuk te klikken.
		is important	information on	mir" bei einer	PP9 Mijn
		for my friends	Facebook.	Facebook-Seite	vrienden vragen
		social life.	PP11 My	von einer	mij op "vind ik
		12) My friends	friends	berühmten	leuk" te klikken
		often ask me	communicate	Personen zu	op een
		to join some	publicly with	klicken.	Facebook-
		group on	each other on	PP10 Meine	pagina van een
		Facebook.	Facebook.	Freunde sind oft	beroemd
			PP12 My	damit beschäftigt,	persoon.
			friends	Informationen auf	PP10 Mijn
			participate in	Facebook zu	vrienden
			public	teilen.	besteden veel
			discussions on	PP11 Meine	tijd aan het
			Facebook.	Freunde	delen van
				unterhalten sich	informatie op
				öffentlich auf	Facebook.
				Facebook.	PP11 Mijn
				PP12 Meine	vrienden
				Freunde nehmen	communiceren
				an öffentlichen	in het openbaar
				Diskussionen auf	op Facebook.
				Facebook teil.	PP12 Mijn
					vrienden nemen
					deel aan
					openbare
					discussies op
					Facebook.
Perceived	Krasnova et	Convenience	CON1	CON1 Facebook	CON1
benefits	al (2010)	of	Facebook is	ist praktisch, um	Facebook is
		Maintaining	convenient for	alle meine	handig om al
Convenience		Relationships	informing all	Freunde über	mijn vrienden

of Maintaining	/ α =0.82	my friends	meine aktuellen	over mijn
Relationships	(Krasnova,	about ongoing	Tätigkeiten zu	huidige
Relationapo	2010; partly	activities.	informieren.	activiteiten te
Relationship	based on	CON2	CON2 Facebook	informeren.
Building	Chiu et al.,	Facebook	ermöglicht es mir,	CON2
	2006)	allows me to	Zeit zu sparen,	Facebook geeft
Self-	CON1 The	save time	wenn ich etwas	mij de
presentation	OSN is	when I want to	mit meinen	mogelijkheid om
	convenient to	share	Freunden teilen	tijd te besparen
Enjoyment	inform all my	something new	möchte.	als ik iets wil
	friends about	with my	CON3 Ich finde	delen met mijn
	my ongoing	friends.	Facebook	vrienden.
	activities.	CON3 I find	effizient, um	CON3 lk vind
	CON2 The	Facebook	Informationen mit	Facebook een
	OSN allows	efficient in	meinen Freunden	efficiente
	me to save	sharing	zu teilen.	manier om
	time when I	information		informatie met
	want to share	with my	RB1 Durch	mijn vrienden te
	something	friends.	Facebook komme	delen.
	new with my		ich in Kontakt mit	
	friends.	RB1 Through	neuen Leuten, die	RB1 Door
	CON3 I find	Facebook I get	meine Interessen	Facebook kom
	the OSN	connected to	teilen.	ik in contact met
	efficient in	new people	RB2 Facebook	nieuwe mensen
	sharing	who share my	hilft mir, mein	die mijn
	information	interests.	soziales Netzwerk	interesses
	with my	RB2 Facebook	weiter	delen.
	friends	helps me to	auszubauen.	RB2 Facebook
		expand my	RB3 Ich lerne	helpt mij om
	Relationship	network.	neue Leute auf	mijn sociale
	Building / α	RB3 I get to	Facebook	netwerk verder
	<b>=0.70</b> (self-	know new	kennen.	uit te breiden.
	developed)	people through		RB3 lk leer
	RB1 Through	Facebook.	SP1 Ich	nieuwe mensen
	the OSN I get	SD1 I true to	versuche, auf	kennen via Facebook.
	connected to	SP1 I try to make a good	Facebook einen guten Eindruck	Facebook. SP1 lk probeer
	new people who share my	impression of	von mir zu	anderen een
	interests.	me on others	hinterlassen.	goed beeld van
	RB2 The OSN	on Facebook.	SP2 Ich	mezelf te geven
	helps me to	SP2 I try to	versuche, mich	via Facebook.
	expand my	present myself	auf Facebook gut	SP2 lk probeer
	network.	in a favorable	darzustellen.	mijzelf op
	RB3 I get to	way on	SP3 Facebook	Facebook goed
	know new	Facebook.	hilft mir, meine	te presenteren.
	people	SP3 Facebook	besten Seiten zu	SP3 Facebook
	through the	helps me to	präsentieren.	helpt mij om mij
	OSN.	present my		van mijn beste
		best sides to	EN1 Wenn mir	kant te laten
	Self-	others.	langweilig ist,	zien aan
	presentation /		gehe ich auf	anderen.
	α =0.86	EN1 When I	Facebook.	
	(based on	am bored I	EN2 Ich finde	EN1 Als ik mij

				· - · ·	· · ·· ·
		Walther et al.,	login to	Facebook	verveel, ga ik
		2001) SPR1 I try to	Facebook. EN2 I find	interessant. EN3 Ich verbringe	op Facebook. EN2 lk vind
		make a good	Facebook	eine angenehme	Facebook
		impression on	entertaining.	und entspannte	interessant.
		others on the	EN3 I spend	Zeit auf	EN3 Op
		OSN.	enjoyable and	Facebook.	Facebook breng
		SPR2 I try to	relaxing time	EN4 Ich mag es,	ik een
		present myself	on Facebook.	an Diskussionen	aangename en
		ina	EN4 I enjoy	auf Facebook	relaxte tijd door.
		favourable	participating in	teilzunehmen.	EN4 lk vind het
		way on the	discussions on	EN5 lch mag es,	leuk om aan
		OSN.	Facebook.	meine Meinung	discussies op
		SPR3* The	EN5 I enjoy	auf Facebook zu	Facebook deel
		OSN helps me	expressing my	äußern.	te nemen.
		to present my	opinion on	EN6 Ich mag es,	EN5 lk vind het
		best sides to	Facebook.	interessante	leuk om mijn
		others.	EN6 I enjoy	Informationen auf	mening op
			sharing	Facebook zu	Facebook te
		Enjoyment /	interesting	teilen.	laten horen.
		α =0.74	information on	EN7 Ich mag es,	EN6 lk vind het
		(Nambisan	Facebook.	meinen Freunden	leuk om
		and Baron,	EN7 I enjoy	auf Facebook von	interessante
		2007)	telling friends	meinen	informatie op
		EN1 When I	on Facebook	Erfahrungen zu	Facebook te
		am bored I	about my	berichten.	delen.
		often login to the OSN.	experiences.	EN8 Ich finde es	EN7 lk vind het
		EN2 I find the	EN8 I enjoy showing others	toll, anderen zu zeigen, dass ich	leuk om mijn ervaringen met
		OSN	on Facebook	etwas mag indem	mijn vrienden
		entertaining.	that I "like"	ich auf "gefällt	op Facebook te
		EN3 I spend	something.	mir" klicke.	delen.
		enjoyable and	EN9 I enjoy	EN9 Ich mag es,	EN8 lk houd
		relaxing time	telling others	anderen auf	ervan om
		on the OSN.	on Facebook	Facebook zu	anderen te laten
			that I saw	erzählen, dass ich	zien dat ik iets
		* = removed	something	etwas	leuk vind door
			interesting.	Interessantes	op "vind ik leuk"
			, , , , , , , , , , , , , , , , , , ,	gesehen habe.	te klikken.
					EN9 Ik vind het
					leuk anderen op
					Facebook te
					vertellen dat ik
					iets interessants
					heb gezien.
Perceived risks	Lee et al.	Security risk	By sharing	Durch das Teilen	Door het delen
On with Dist	(2013)	(Lee, 2013) /	personal	von persönlichen	van persoonlijke
Security Risk		$\alpha = 0.922$	information on	Informationen auf	informatie op
Face Risk		SR1 If I share	Facebook	Facebook	Facebook
Relational Risk		this context	SR1 other	SR1 könnten	SR1 kunnen
		information,		andere Leute	anderen mijn
		other people may use it	people may	meine	informatie op
		may use it	use my		monnaue up

r	:	:	Information and	
	inappropriate	information	Informationen auf	een ongepaste
	way *	inappropriately.	eine	manier
	SR2 When I	SR2 other	unangebrachte	gebruiken.
	share this	people may	Art nutzen.	SR2 kunnen
	context	use my	SR2 könnten	anderen mijn
	information,	information in a	andere Leute	informatie op
	other people	way I don't	meine	een manier
	may use it	want it to be	Informationen auf	gebruiken, die
	unwanted	used.	eine Art nutzen,	ik liever niet wil.
	way.	SR3 I could	die ich lieber nicht	SR3 kan ik
	SR3 Due to	be bullied.	möchte.	door anderen
	sharing this	SR4 I allow	SR3 könnte ich	lastig worden
	context	others using	bedrängt werden.	gevallen.
	information, I	my information,	SR4 gebe ich	SR4 geef ik
	will be	although I don't	anderen die	anderen de
	threatened	want them to	Möglichkeit,	kans om mijn
	unexpectedly	use it.	meine	informatie te
	SR4 Sharing		Informationen zu	gebruiken,
	this context	FR1 I could	nutzen, obwohl	terwijl ik niet wil
	information	get	ich nicht möchte,	dat die mensen
	will allow	embarrassed.	dass diese Leute	mijn informatie
	unwanted	FR2 is it	meine	gebruiken.
	people to use	hard to protect	Informationen	
	my information	my self-image.	nutzen.	FR1 kan ik
		FR3 I could		mijzelf in
	Face risk	appear weak in	FR1 könnte ich	verlegenheid
	(Oetzel, 2001)	the eyes of	mich in	brengen.
	/ α = 0.965	others.	Verlegenheit	FR2 is het
	FR1 Sharing	FR4 is it	bringen.	moeilijk om een
	this context	difficult to keep	FR2 ist es	goed beeld van
	information	my self-	schwierig, ein	mezelf op te
	would bring	respect.	gutes Bild von mir	houden.
	shame to		zu bewahren.	FR3 kan ik
	myself.	RR1 I could	FR3 könnte ich	zwak
	FR2 Sharing	run into	schwach auf	overkomen op
	this context	problems with	andere wirken.	anderen.
	information	my friends or	FR4 ist es	FR4 is het
	make it hard	others.	schwierig, meine	moeilijk om mijn
	to protect my	RR2 I could	Selbstachtung zu	zelfrespect te
	self-image.	put my	bewahren.	behouden.
	FR3 Sharing	relationships at		
	this context	risk.	RR1 könnte ich	RR1 kan ik
	information	RR3 I am	Probleme mit	problemen met
	may appear	risking	meinen Freunden	mijn vrienden
	weak in front	negative	bekommen.	krijgen.
	of the other	consequences	RR2 könnte ich	RR2 kan ik
	person.	for my	meine	mijn
	FR4 Sharing	relationships.	Freundschaften	vriendschappen
	this context	RR4 I am	gefährden.	op het spel
	information is	risking conflicts	RR3 riskiere	zetten.
	not good for	with my friends	ich negative	RR3 loop ik
	protecting my	or others.	Folgen für meine	het risico om
	personal		Beziehungen.	negatieve
		I		5

		pride.		RR4 riskiere	gevolgen in mijn
				ich Konflikte mit	relaties te
		* = removed		meinen Freunden	krijgen.
				oder anderen.	RR4 loop ik
					het risico om in
					conflict te
					komen met mijn
					vrienden of
					anderen.
Privacy	Malhotra et	1) All things	PC1 Facebook	PC1 Facebook	PC1 Facebook
concerns	al. (2004)	considered,	could cause	könnte ernste	kan ernstige
	(Global	the Internet	serious privacy	Probleme mit	privacy-
	Information	would cause	problems.	meiner	problemen
	Privacy	serious	PC2	Privatsphäre	veroorzaken.
	Concern;	privacy	Compared to	verursachen.	PC2 In
	Smith et al.	problems.*	others, I am	PC2 Verglichen	vergelijking met
	1996, some	2) Compared	more sensitive	mit anderen bin	anderen ben ik
	items newly	to others, I am	about the way	ich vorsichtiger in	voorzichtiger
	developed).	more sensitive	others handle	der Art, wie ich	met de manier
	CR=0.75;	about the way	my personal	mit meinen	waarop ik met
	AVE=0.50	online	information.	persönlichen	mijn
		companies	PC3 To me, it	Daten umgehe.	persoonlijke
		handle my	is an important	PC3 Für mich ist	gegevens om
		personal	thing to keep	es wichtig, meine	ga.
		information.	my privacy	Privatsphäre zu	PC3 Voor mij is
		3) To me, it is	intact from	schützen.	het belangrijk
		the most	others.	PC4 Ich glaube,	mijn privacy te
		important	PC4 I believe	dass sich andere	beschermen.
		thing to keep	other people	Leute zu viel um	PC4 lk denk dat
		my privacy	are too much	Online-	anderen zich te
		intact from	concerned with	Privatsphäre	veel zorgen
		online	online privacy	sorgen.	maken over hun
		companies.	issues.	PC5 Im	online privacy.
		4) I believe	PC5 In	Allgemeinen ist	PC5 Over het
		other people	general,	meine	algemeen is
		are too much	personal	Privatsphäre sehr	mijn privacy
		concerned	privacy is a	wichtig für mich.	heel belangrijk
		with online	very important	PC6 Ich bin	voor mij.
		privacy	subject on my	beunruhigt über	PC6 lk ben
		issues.*	mind.	Gefahren, die	ongerust over
		5) Compared	PC6 I am	meine	de gevaren die
		with other	concerned	Privatsphäre	mijn privacy
		subjects on	about threats	betreffen.	betreffen.
		my mind,	to my personal	PC7 Ich sorge	PC7 lk maak
		personal	privacy.	mich, dass	mij zorgen dat
		privacy is very	PC7 I am	andere	anderen
		important.*	concerned that	Informationen von	informatie van
		6) I am	someone can	mir auf Facebook	mij op
		concerned	find information	finden können,	Facebook
		about threats	about me on	die ich privat	kunnen vinden
		to my personal	Facebook that	halten wollte.	die ik privé had
		privacy today.	I want to keep		willen houden.
			private.		

$ \begin{array}{c} \mbox{Min and} & 1) \mbox{I am} \\ \mbox{Kim (2015) /} & \mbox{concerned} \\ \mbox{that the} & \\ \mbox{information I} \\ \mbox{submit on} \\ \mbox{Facebook} \\ \mbox{could be} \\ \mbox{misused} \\ \mbox{2) I am} \\ \mbox{concerned} \\ \mbox{that a person} \\ \mbox{can find} \\ \mbox{private} \\ \mbox{information} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ \mbox{Facebook} \\ \mbox{3) I am} \\ \mbox{concerned} \\ \mbox{about me on} \\ About$	
Kim (2015) / concerned   α =0.91 that the   information I submit on   Facebook could be   misused 2) I am   concerned that a person   can find private   information about me on   Facebook 3) I am	
Kim (2015) / concerned   α =0.91 that the   information I submit on   Facebook could be   misused 2) I am   concerned that a person   can find private   information about me on   Facebook 3) I am	
Kim (2015) / concerned   α =0.91 that the   information I submit on   Facebook could be   misused 2) I am   concerned that a person   can find private   information about me on   Facebook 3) I am	
α =0.91 that the information I submit on Facebook could be misused 2) I am concerned that a person can find private information about me on Facebook 3) I am	
submit on Facebook could be misused 2) I am concerned that a person can find private information about me on Facebook 3) I am	
Facebookcould bemisused2) I amconcernedthat a personcan findprivateinformationabout me onFacebook3) I am	
Facebook could be misused 2) I am concerned that a person can find private information about me on Facebook 3) I amImage: Concerned Facebook Solution	
could be misused 2) I am concerned that a person can find private information about me on Facebook 3) I amImage: Could be misused could be that a person can find misused that a person can find private information the person the	
misused 2) I am concerned that a person can find private information about me on Facebook 3) I am	
2) I am concerned that a person can find private information about me on Facebook 3) I am	
concerned that a person can find private information about me on Facebook 3) I am	
that a person   can find   private   information   about me on   Facebook   3) I am	
can find private information about me on Facebook 3) I am	
information about me on Facebook 3) I am	
information about me on Facebook 3) I am	
Facebook 3) I am	
Facebook 3) I am	
3) I am	
about	
submitting	
information on	
Facebook,	
because of	
what others	
might do with	
it	
4) I am	
concerned	
about	
submitting	
information on	
Facebook,	
because it	
could be used	
in a way I did	
not foresee	

## Appendix B: Survey in English

### How do you use Facebook?

Thank you for participating in my survey!

# After completing the survey, you will have the chance to win one of three 10 Euro Amazon-vouchers.

In this survey, you will be asked to answer questions about how you use and how you look towards using Facebook. These questions focus on your personal opinion and experiences, so there are no right or wrong answers. It will take around 10 minutes of your time.

The survey is fully anonymous and your responses will be kept confidential. All results will be stored safely and will only be accessible to me. Your participation is voluntary and you can choose to quit at any time. There are no questions that ask to provide your name or e-mail address – unless you want to take part at the raffle to win one of the three 10 Euro Amazon-vouchers. At the end of the survey, you will be provided with a link to a separate survey where you will be asked to enter your name and e-mail address. This information will be accessed to facilitate raffle selection, but won't be directly linked to survey responses.

By starting this survey, you acknowledge that you have read the previous information and agree to participate in this study.

Thank you!

Svenja Beuker (<u>s.beuker@student.utwente.nl</u>)

Do you have a	Yes	No			
Facebook profile?	0	0			
Since when do you	Choose				
have a Facebook profile?	between 2004- 2015				
How often do you visit	Once a	Several	Once a	Several	More
Facebook?	week or less	times a week	day	times a day	than 10 times a day
	0	0	0	0	0
On average, how much time do you spend on Facebook per visit?	Less than a minute	1-5 min	6-15 min	16-30 min	More than half an hour
	0	0	0	0	0
How many Facebook- friends do you have approximately?	Empty box to fil in the number of friends				

## Imagine you create your Facebook-profile today. How willing are you to disclose following information?

	Very willing	Willing	Neutral	Willing	Very unwilling	l don't provide it
You real first name	O	0	0	0	O	0
Your real last name	0	0	0	0	Ο	0
Your real birthday	0	0	0	0	0	0
Your real e-mail address	0	0	0	0	Ο	0
A real profile picture of you	0	0	0	0	Ο	Ο
Your real address	0	0	0	0	Ο	Ο
The real name of your school	0	0	Ο	0	0	0
Your real work experiences	0	0	0	0	Ο	Ο
Your real religious views	0	0	0	0	0	0
Your real political views	0	0	0	0	0	0
Your real family members	0	0	0	0	0	Ο

Your real relationship	0	0	0	0	0	0
status						

#### Now you signed up on Facebook, how willing are you ...

to keep your friends up-to-date on what you're doing at that moment.	Very willing O	Willing O	Neutral O	Willing O	Very unwilling O	l don't do this O
to share your opinion on Facebook.	0	0	0	0	0	0
to click "Like" when you see something you like.	0	0	0	0	Ο	0
to share on Facebook where you are at that moment.	0	Ο	Ο	0	Ο	0
to share pictures about yourself on Facebook.	Ο	0	Ο	0	Ο	0
to react publicly to pictures or messages of other Facebook-users.	0	0	0	0	Ο	0
to "like" a Facebook-page of a brand (e.g. Nike).	0	0	0	0	Ο	0
to join public groups on Facebook.	0	0	0	0	0	0
to show that you participate on events posted on Facebook.	0	0	0	0	Ο	0

#### How do your friends use Facebook?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
My friends are sharing information on Facebook.	0	0	0	0	Ο
My friends suggest to post certain things (e.g. pictures) about myself on Facebook.	0	0	0	0	0
Most of my friends actively maintain their Facebook profiles.	0	0	0	0	Ο
My friends rarely disclose information on Facebook.	0	0	0	Ο	Ο
People I meet tell me to "find them on	0	0	0	0	0

#### Facebook".

My friends keep me regularly informed about their lives by posting on Facebook.	0	0	0	0	0
My friends ask me to join public groups on Facebook.	0	Ο	Ο	0	0
My friends ask me to "like" their pages.	0	0	0	0	0
My friends suggest to "like" a Facebook page of a famous person.	0	0	0	0	0
My friends spend a lot of time sharing information on Facebook.	0	0	0	0	0
My friends communicate publicly with each other on Facebook.	0	0	0	0	0
My friends participate in public discussions on Facebook.	0	0	0	0	0

#### What benefits do you think Facebook has?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Facebook is convenient for informing all my friends about ongoing activities.	0	Ο	Ο	Ο	Ο
Facebook allows me to save time when I want to share something new with my friends.	Ο	0	Ο	0	Ο
I find Facebook efficient in sharing information with my friends.	0	0	0	0	0
Through Facebook I get connected to new people who share my interests.	0	0	0	0	0
Facebook helps me to expand my network.	0	0	0	0	0
I get to know new people through Facebook.	0	0	0	0	0
I try to make a good impression of me on others on Facebook.	0	0	0	Ο	0
I try to present myself in a favorable way on Facebook.	0	Ο	0	Ο	Ο
Facebook helps me to present my best	0	0	0	0	0

When I am bored I login to Facebook.	0	0	0	0	0
I find Facebook entertaining.	0	0	0	0	0
I spend enjoyable and relaxing time on Facebook.	0	0	0	0	0
I enjoy participating in discussions on Facebook.	0	0	0	0	0
I enjoy expressing my opinion on Facebook.	0	0	0	0	0
I enjoy sharing interesting information on Facebook.	0	0	0	0	0
I enjoy telling friends on Facebook about my experiences.	0	Ο	0	0	0
I enjoy showing others on Facebook that I "like" something.	0	Ο	Ο	0	Ο
I enjoy telling others on Facebook that I saw something interesting.	0	0	0	0	0

#### By sharing personal information on Facebook ...

sides to others.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
other people may use my information inappropriately.	0	0	0	0	0
other people may use my information in a way I don't want it to be used.	0	0	0	Ο	Ο
I could be bullied.	0	0	0	0	0
I allow others using my information, although I don't want them to use it.	0	0	0	0	0
I could get embarrassed.	0	0	0	0	0
is it hard to protect my self-image.	0	0	0	0	0
I could appear weak in the eyes of others.	0	0	Ο	Ο	0
is it difficult to keep my self-respect.	0	ο	0	0	0

I could run into problems with my friends or others.	0	Ο	Ο	Ο	0
I could put my relationships at risk.	0	0	0	0	0
I am risking negative consequences for my relationships.	0	0	Ο	Ο	0
I am risking conflicts with my friends or others.	0	0	Ο	Ο	0

#### How important is your privacy to you?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Facebook could cause serious privacy problems.	0	0	Ο	Ο	0
Compared to others, I am more sensitive about the way others handle my personal information.	0	0	0	Ο	Ο
To me, it is an important thing to keep my privacy intact from others.	0	0	Ο	0	0
I believe other people are too much concerned with online privacy issues.	0	0	Ο	0	Ο
In general, personal privacy is a very important subject on my mind.	0	0	Ο	0	0
I am concerned about threats to my personal privacy.	0	0	0	Ο	0
I am concerned that someone can find information about me on Facebook that I want to keep private.	Ο	0	0	Ο	0

I am a	Man	Woman	l don't want to reveal
	Ο		0
What is your age?	Under 18, 18-100		
What is your nationality?	German O	Dutch O	Other O

Privacy Paradox: Factors influencing disclosure of personal information - Svenja Beuker

What is your highest degree or level of	No schooling completed	High school	Apprenticeship	Trade/ technical/ vocational school	A-level education	University degree	
school you have completed?	0	0	Ο	0	0	Ο	
What is your profession?	Student	Employed part-time	Employed full- time	Self- employed	Out of work	Retired	Other
	0	0	0	0	Ο	0	0

## Thanks for participating!

## Appendix C: Differences between the nationalities

	Mean	rank	U	Z	Sig
	German	Dutch			
	n=734	n=177			
WD_basic	492.31	305.44	38.309	-8.516	p=.000*
WD_contact	465.34	417.27	58.104	-2.221	p=.026*
WD_additional	488.18	322.55	41.338	-7.525	p=.000*
WD_active	473.20	384.67	52.332	-4.026	p=.000*
WD_like	467.84	406.91	56.270	-2.775	p=.006*
ENofDIS	472.64	387.01	52.748	-3.898	p=.000*
ENofFB	458.12	447.21	63.403	-0.508	p=.611
Social risks	450.59	478.45	68.932	1.271	p=.204
Security risk	449.72	482.05	69.570	1.480	p=.139
CON	468.69	403.39	55.646	-2.984	p=.003*
SP	469.06	401.85	55.374	-3.071	p=.002*
RB	449.38	483.43	69.814	1.554	p=.120
Importance of Privacy	436.02	538.86	79.624	4.745	p=.000*
Privacy concerns	443.99	505.81	73.776	2.824	p=.005*
Peer pressure	468.46	404.34	55.814	-2.914	p=.004*

Table 32: The differences between nationalities tested with Mann Whitney U tests

Note: \*=p≤0.05

## **Appendix D: Reformulated hypotheses**

Hypothesis 1: Privacy valuation influences the Willingness to disclose personal information. Hypothesis 1a: Privacy concerns influence the Willingness to disclose personal information. Hypothesis 2: Privacy valuation influences Perceived risks. Hypothesis 2a: Privacy concerns influence Perceived risks. Hypothesis 3: Privacy valuation influences Perceived benefits. Hypothesis 3a: Privacy concerns influence Perceived benefits. Hypothesis 4: Perceived risks negatively influence the Willingness to disclose personal information. Hypothesis 4a: Security risks negatively influence the Willingness to disclose personal information. Hypothesis 4b: Social risks negatively influence the Willingness to disclose personal information. Hypothesis 5: Perceived benefits positively influence the Willingness to disclose personal information. Hypothesis 5a: Perceived convenience of maintaining existing relationships positively influence the Willingness to disclose personal information. Hypothesis 5b: The opportunity of building new relationships positively influences the Willingness to disclose personal information. Hypothesis 5c: Perceived benefits of self-presentation positively influence the Willingness to disclose personal information. Hypothesis 5d: Perceived enjoyment of disclosing personal information on Facebook positively influence the Willingness to disclose personal information. Hypothesis 5e: Perceived enjoyment of using Facebook positively influence the Willingness to disclose personal information. Hypothesis 6: Peer pressure influences the Willingness to disclose personal information. Hypothesis 7: Peer pressure influence Perceived risks. Hypothesis 8: Peer pressure influences Perceived benefits.

### **Appendix E: Validation of constructs**

#### Validation of willingness to disclose personal information

Prior to executing the analyses, three assumptions underlying a PCA had to be confirmed. First it was checked if all items correlated at least 0.3 with at least one other item. Second, the Kaiser-Meyer-Olkin (KMO) measure is used to investigate whether there are linear relationships between the variables, which is a precondition to run the PCA. The recommended value of 0.6 is exceeded with a KMO-value of 0.872. This shows that the data is useful to be analyzed by PCA. Also the individual KMO is checked in the Anti-image Correlation Matrix to test the sample adequacy. In this study all individual KMO correlations are greater than 0.7, so there is adequacy of sampling.

Third, it was tested if the data is suitable for data reduction by measuring Bartlett's test of sphericity. The test was significant ( $x^2$  (210) = 6926.663, p < .00), which implies that the data is appropriate to be structured in factors.

The PCA revealed five components that had eigenvalues greater than 1 and which explain 58.90 % of the variance. The five components are named as Willingness to disclose basic personal information, Willingness to disclose contact information, Willingness to disclose additional personal information, Willingness to disclose personal information by actively posting information and Willingness to disclose "like"-related information. The classification of the constructs and the factor loading are shown in table 33.

Factor	Items	Factor	Cronbach's
		loadings	Alpha
Willingness to disclose	First name	0.798	α=0.74
basic info			
	Last name	0.753	
	Birthday	0.548	
	Profile picture	0.605	
Willingness to disclose contact info	Address	0.727	α=0.54
	E-mail address	0.815	
Willingness to disclose additional info	Name of school	0.564	α=0.82
	Work experiences	0.639	
	Religious views	0.833	
	Political views	0.816	
	Family members	0.593	
	Relationship status	0.585	
Willingness to disclose	to keep your friends up-to-date	0.767	α=0.80
info by actively posting info	on what you're doing at that moment.		
	… to share your opinion on Facebook.	0.781	
	to share on Facebook where you are at that moment.	0.598	
	to share pictures about yourself on Facebook.	0.560	
	to react publicly to pictures or messages of other Facebook- users.	0.616	
Willingness to disclose	to click "Like" when you see	0.559	α=0.72
like-related info	something you like.	0.000	5 -0.1 L
	to "like" a Facebook-page of a brand (e.g. Nike).	0.754	
	to join public groups on Facebook.	0.561	
	to show that you participate on events posted on Facebook.	0.730	

Table 33: Categorization of the Willingness to disclose personal information with the factor loadings and Cronbach Alphas

#### Validation of situational factors

As described in the previous PCA, three assumptions had to be confirmed prior to executing the PCA. All assumptions are satisfactory (KMO=0.869, Bartlett's test  $x^2$  (351) = 15133.871, p < .000). The analysis revealed seven components with an eigenvalue greater than 1. Together the components describe 72.93 % of the variance. Three items were deleted to enhance internal consistency of the scales and the validation of the constructs. One of the

items that measure face risks is deleted ("... I could get embarrassed") and two items that measure enjoyment are deleted ("When I am bored I login to Facebook" and "I enjoy showing others on Facebook that I "like" something").

The components are in general distributed as expected. The subscales Convenience of maintaining relationships, Self-presentation, Relationship building and Security risks are supported. The subscales Face risks and Relational risks are merged and are named Social risks (see table 34). The Enjoyment scale is separated into two: Enjoyment of using Facebook and Enjoyment of disclosing personal information on Facebook (see table 34).

Factor	Items	Factor loadings	Cronbach's Alpha
Social risks	is it hard to protect my self- image.	0.707	α=0.92
	I could appear weak in the eyes of others.	0.790	
	is it difficult to keep my self- respect.	0.804	
	I could run into problems with my friends or others.	0.847	
	I could put my relationships at risk.	0.885	
	I am risking negative consequences for my relationships.	0.866	
	I am risking conflicts with my friends or others.	0.857	
Enjoyment of using Facebook	I find Facebook entertaining.	0.830	α=0.72
	I spend enjoyable and relaxing time on Facebook.	0.827	
Enjoyment of disclosing personal	I enjoy participating in discussions on Facebook.	0.804	α=0.85
information on Facebook	I enjoy expressing my opinion on Facebook.	0.857	
	I enjoy sharing interesting information on Facebook.	0.718	
	I enjoy telling friends on Facebook about my experiences.	0.656	
	I enjoy telling others on Facebook that I saw something interesting.	0.537	

Table 34: Categorization of Social risks and Enjoyment

#### Validation of pre-existing variables

To test the validation of the pre-existing variables Privacy concerns and Peer pressure, a third PCA is conducted. All of the three required assumptions are satisfactory (KMO=0.843, Bartlett's test  $x^2$  (120) = 4880,909, p < .000). The analysis revealed three components with

an eigenvalue greater than 1. Together the components describe 53.88 % of the variance. The fourth item of the Privacy concern scale, "I believe other people are too much concerned with online privacy issues" is ambiguous and unclearly formulated and was therefore deleted. Also two items (PP4 and PP5) of the scale to measure Peer pressure were deleted to enhance the reliability of the scale. The fourth item (PP4) "My friends rarely disclose information on Facebook" is formulated negatively and therefore difficult to answer for the respondents. The other item (PP5) "People I meet tell me to 'find them on Facebook'" differs a lot from the other items of the scale and does not fit in the scale.

The interpretation of the data was similar to the pre-existing variables the survey was designed to measure with strong loadings of Peer pressure on one component. Privacy concerns are divided into two constructs: Importance of privacy and Privacy concerns. The items, component loadings and Cronbach's Alpha scores of the scales are presented in table 35.

Factor	Items	Factor loadings	Cronbach's Alpha
Peer	My friends are sharing information on	0.524	α=0.85
pressure	Facebook.		
	My friends suggest to post certain things	0.526	
	(e.g. pictures) about myself on Facebook.		
	Most of my friends actively maintain their	0.643	
	Facebook profiles.		
	My friends keep me regularly informed	0.682	
	about their lives by posting on Facebook.		
	My friends ask me to join public groups	0.689	
	on Facebook.		
	My friends ask me to "like" their pages.	0.607	
	My friends suggest to "like" a Facebook	0.641	
	page of a famous person.		
	My friends spend a lot of time sharing	0.716	
	information on Facebook.		
	My friends communicate publicly with	0.714	
	each other on Facebook.		
	My friends participate in public	0.714	
	discussions on Facebook.		
mportance	Compared to others, I am more sensitive	0.765	α=0.83
of privacy	about the way others handle my personal		
	information.		
	In general, personal privacy is a very	0.801	
	important subject on my mind.		
	To me, it is an important thing to keep my	0.809	
	privacy intact from others.		
Privacy	Facebook could cause serious privacy	0.619	α=0.70
concerns	problems.		
	I am concerned about threats to my	0.716	
	personal privacy.		
	I am concerned that someone can find	0.767	
	information about me on Facebook that I		
	want to keep private.		

Table 35: Categorization of pre-existing variables